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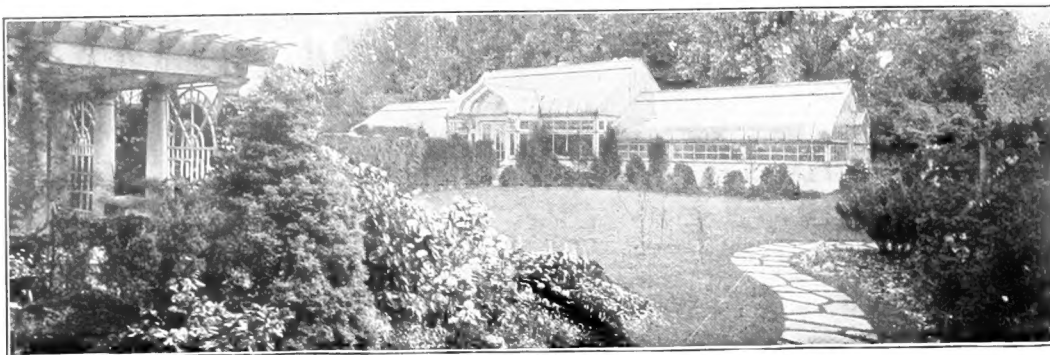
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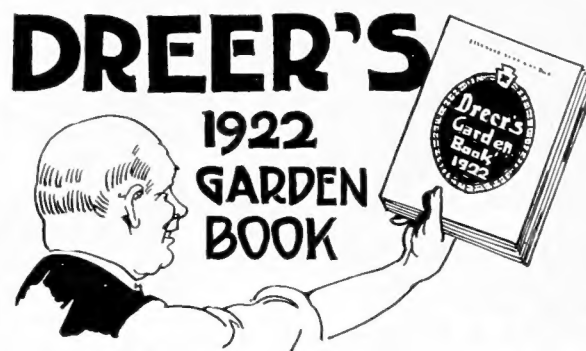
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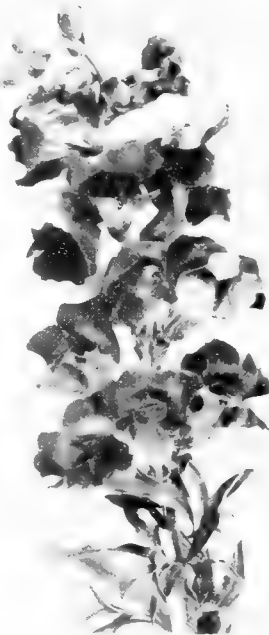
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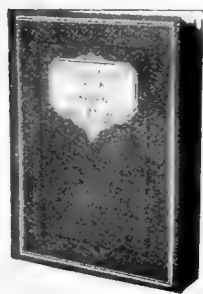
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

JANUARY, 1922

No. 1

Things and Thoughts of the Garden

MONTAGUE FREE

IT IS, of course impossible to describe Kew in an article such as this, so the attempt will be made only to give the impression of a one-time Britisher, now an American, on returning to his Alma Mater after an absence of ten years.

One striking thing about Kew as viewed in 1921 is the marvellous recovery it has made since the setback due to the war. From pessimistic reports received during this period of its run down condition owing to lack of labor, coupled with the fact that onions were growing in the parterre in front of the palm house and the Palace lawn had been plowed for potatoes, one would be justified in thinking that years must elapse before it could regain its pre-war excellence. But apart from the poor appearance due entirely to the drought, Kew seemed to be looking exceptionally well and there were no evidences of neglect, but the drought certainly worked havoc with many of the plants, and it was interesting to notice their reaction to these dry conditions. The rhododendrons in the wilder section of the garden, where it was impossible to water them, were in a sorry condition. The bamboos, too, were showing signals of distress, but the hollies and holm oaks were apparently none the worse.

One of the important features of the garden and one that might be duplicated to advantage in many gardens, both public and private, was a large group planting made up entirely of trees and shrubs with various foliage. This, of course, is a feature that could easily be overdone and one in which it would be easy to get the wrong notes, unless the planter had perfect taste and good knowledge of the color and the texture of the material used.

A list of some of the plants used in this group may be of value and provide suggestions for anyone who may be sufficiently interested to try out a similar planting scheme. There were: *Prunus cerasifera atropurpurea* (P. Pissardi), the purple leaved plum; Japanese maples in variety; the evergreen *Euonymus Japonicus*, in both gold and silver variegated forms, (the type by the way, is hardy in Brooklyn in years when the winters are not too severe); *Cornus controversa variegata*, a large leaved species with white margins—probably not hardy in the north; *Cornus alba* var. *Spæthii*, leaves edged with yellow; *Artemisia tridentata* and *Santolina chamaecyparissus*, which provide a grey tint in the planting; *Catalpa bignonioides aurea*, a form with yellow leaves, very effective; *Berberis vulgaris* var. *atropurpurea*, the common purple leaved Barberry; *Acer Negundo variegata*, with silvery

variegation; *Acer Negundo aurea*, with yellow leaves; *Corylus maxima atropurpurea*, an extremely effective form with large leaves and the coloring of Copper Beech; *Diercilla florida variegata*; *Ligustrum ovalifolium variegatum*; *Ulmus campestris* var. *Louis van Houtte*, a form of the English Elm having its leaves tinged with yellow and many variegated varieties of *Ilex Aquifolium*.

* * *

The hot Summer and abundance of sunshine evidently proved satisfactory to aquatic plants in general and at Kew as at every other garden we visited, where aquatics were a feature, the water lilies were superb.

The formal water garden at Kew is indeed beautiful and possesses one or two unusual features. The central part is occupied by a long pool rounded at each end. This is used for the cultivation of hardy water lilies which are planted in baskets of suitable soil. On either side are two rectangular tanks which are filled with soil almost to their brims. In these such plants are grown as require wet soil but which do not need to be submerged. At each corner there are tanks, raised 2½ ft. or so above the level of the central pool and reaching to the height of the terrace which surrounds the water garden. Here may be seen a collection of miscellaneous aquatics, especially those kinds whose beauty is more apparent when subjected to the close inspection afforded by these raised tanks. On the terrace and serving to enclose the pools is a beautiful hedge of *Berberis stenophylla* which is kept sheared, but this apparently does not prevent it from blooming for it is reputed to be a wonderful sight in the Spring. It is a shrub that stands shearing well and forms such an admirable, impenetrable hedge that one regrets that it is not sufficient hardy to stand our climate. In the background one catches glimpses of an old red brick wall clothed with shrubs and climbers, and, back of this, trees of varied habit form an interesting skyline to which emphasis is given by the spire-like forms of one or two Lombardy Poplars.

An interesting pool in another part of the garden receives its water in the form of condensed steam from the pumping station. As a result of this the water never freezes over and it is possible to grow therein a number of plants which are usually looked upon as being tender. At the time of our visit, this pool was made gorgeous by water lilies of many hues; and its banks were attractive by reason of many plants of subtropical appearance such as *Thalia dealbata* and *Zizania aquatic*.

The Holly Walk, or Avenue, consists of a wonderfully complete collection of species and varieties of *Ilex*, including over seventy varieties of English holly, planted on either side of a walk extending a distance of eight hundred yards. This collection affords connoisseurs an admirable opportunity of studying the genus and the remarkable diversity of form which *Ilex aquifolium* exhibits. Probably in no other place would it be possible to find gathered together in one place so many distinct species and varieties. No fewer than ninety-seven are enumerated in the Kew "Handbook of Trees and Shrubs." The majority of these are, of course, evergreen. In addition to the specimens in the general collection there are many superb holly hedges and also many sheared specimens to be seen in the vicinity of the formal garden near the great palm house. Probably no evergreen is better adapted to withstand dry conditions than these noble plants, and it was not only at Kew that we noticed the ability of holly as a drought resistance tree. In Epping Forest, where most of the trees and shrubs were in a parlous condition, the holly was apparently no bit the worse for the unusual drought. It is also tolerant of shade, and many fine specimens were seen growing almost entirely overshadowed by large trees. What a pity English holly is not reliably hardy in our northern gardens!

The formal bedding at Kew is characterized by simplicity but at the same time it is rich and interesting. Carpet bedding is practically taboo. The onions had been dismissed from the parterre in front of the great palm house and it was gay with a variety of plants. The most conspicuous in this bright assemblage, strangely enough, were North American plants; and yet we seldom see them used as bedding plants in our own country.

The large central beds were occupied by tall growing pentstemons in light and dark red varieties and presented a truly magnificent appearance. The garden pentstemons have probably been derived from *P. cobaea* and *P. Hartwegii*. The former occur wild on the prairies from Kansas southwestward, and the latter is found in cool regions of Mexico. The garden forms that have been developed are a great improvement on the wild species and are extremely valuable for bedding purposes in climates that suit them. Why is it that they are not used in Eastern North America? Are our Summers too hot or is it too much trouble to carry them over the Winter as rooted cuttings? The other North American plant to be seen here was in the form of an exceptionally fine strain of *Phlox Drummondii*, a native of Texas. This makes an admirable bedding subject if plants are raised from seeds of a good strain and the long trailing growths pegged to the ground.

Other materials used in this series of beds were half-dwarf snapdragons in mixture,—a remarkably fine strain such as we seldom see in this country; the yellow *Calceolaria amplexicaulis*, still a favorite in almost all English bedding arrangements; and a double Marguerite that we assumed to be the variety "Mrs. Sander."

It is the practice at Kew to make up beds of some particular variety or other that may be new, or one that may be new, or one that may be old, so far as date of production or introduction is concerned, but whose merits as a plant for bedding purposes are unrecognized. For example there was an immense circular bed filled entirely with a dwarf, double-flowered, pink hollyhock, the name of which we have unfortunately lost. These plants, although well grown, were not more than three or four feet in height and were wonderfully effective. Then too, there was a lavender colored *Erigeron* which, when seen

massed in a bed about thirty feet by ten, was exceptionally good. We were unable to find a label on this plant, presumably someone had stolen it, but we assumed it to be the variety "Asa Gray."

When a garden contains something over 20,000 different species and varieties, as Kew does, it seems foolish to attempt to single out a few for special mention. And yet perhaps it may not be amiss to call attention to two or three that made a special impression on us.

Myoporum parvifolium seemed to possess great possibilities as a decorative plant. It is an evergreen trailer with abundant shoots thickly clothed with small bright green leaves. Its flowers are white, sweet scented, and freely produced. At Kew it was grown in hanging baskets about one foot in diameter and from these the shoots, covered with myriads of flowers, depended to a length of at least four feet, completely covering the baskets. It is not by any means a plant new to gardens, and yet it is seldom seen nowadays. Bailey's Cyclopaedia, in referring to this plant says: "In 1883 it was stated in the *Garden* that for 20 years many thousand plants of it had been sold annually in the flower markets of Paris. One grower always had a stock of 30,000 plants." It is a native of Australia and succeeds in a cool house.

A gigantic climbing honeysuckle *Lonicera Hildebrandtiana*, was diffusing its fragrance in the Temperate House. Its flowers, seven inches in length, are the largest known in the genus. They are variable in color, those of the plant at Kew being white at the time of opening, changing to yellowish-buff as they age. This *Lonicera* coming, as it does, from Upper Burma is of course not hardy, but it is magnificent when grown in a cool house of sufficient size to accommodate it.

The gigantic Birthwort, *Aristolochia gigas*, was exhaling its disgustingly fetid odor in the water-lily house. It possesses larger flowers than any other plant that is amenable to cultivation and is only exceeded by the parasitic *Rafflesia Arnoldii*, which, so far as is known, has never been cultivated. Flowers have been produced on the *Aristolochia* at Kew, 18 inches wide, 22 inches long, with the stringlike appendage 42 inches in length; making the flower 64 inches from top to bottom! The shape of the unopened flower buds inspired the common names "Goose Plant" and "Pelican Flower," while its reputed deadly effect when eaten by swine, was doubtless responsible for the elegant title "Poison Hog-meat."

* * *

Despite unfavorable soil conditions—Kew is founded on barren sand—there are many fine specimen trees, especially in the section occupied by the old Botanic Garden of 1760 which are far too numerous for even a tithe of them to be mentioned. For example there is a tree of our Persimmon, *Diospyros virginiana*, planted in 1762, nearly 70 feet high with a trunk 2 feet in diameter; also a noble specimen of *Sophora japonica*, 70 feet high, one of the original importation of 1753; and many fine examples of the "*Ilex*," *Quercus Ilex*, an evergreen oak from Southern Europe, one of which is 50 feet in height, with a spread of over 70 feet and a trunk 12 feet in circumference.

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Sedum—Stone-crop

RICHARD ROTHE

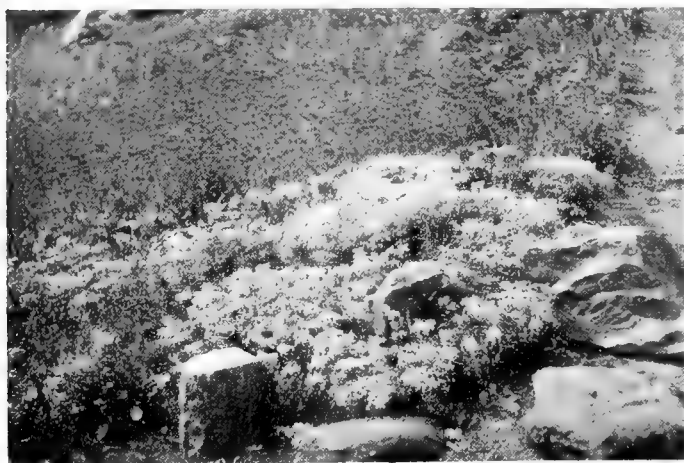
THE number of species of the genus *Sedum*—a member of the order *Crassulaceae*—runs up to about one hundred fifty. A glance over the trade lists from here and abroad shows great divergency in naming and standard works mention synonyms to an extent betraying



Sedum acre

the present chaotic state of the nomenclature of stone-crops. This, in some instances, renders it impossible for growers and the trade in general to absolutely guarantee correctness of name.

Sedums are divided in a dwarfy, low and dense growing evergreen class and a more or less succulent, hardy,



Sedum album

herbaceous class of mostly medium height, species of both classes abounding within the temperate and arctic zones of northern hemisphere. The largest assortment in any of the American catalogs I have seen did not exceed the two dozen figure. By nature they prefer an open sunny rather dry situation, and when well established prove exceptionally resistible to hot weather and prolonged drought as well as to the most severe of even our northern Winters. Many of the low creeping evergreen species have frequently served as a most useful material for covering dry and sandy embankments, where grass growth turns brown every Summer. *Sedum acre*, *dasyphyllum*, *glaucum* and *lydum glaucum*, on account

of their low and dense habit of growth, are the best mediums for filling up crevices of rough slab stone walks and stairwork in formal gardens. *Sedum album*, *Ewersi*, *reflexum*, *spurium* and *stoloniferum* are distinguished by creeping and more spreading growth and, for this reason, best adapted for ground covering on a larger scale.

The best known representative of the herbaceous class is *Sedum spectabile*, the garden form of *Sedum Fabaria*, a lilac-purple flowering native of Central Europe. Of a sturdy erect growth, attaining a height from 15 to 20 inches, the large flowerheads of *Sedum spectabile* in handsome rosy pink or, if we prefer the new variety *spectabile* "Brilliant," in bright amaranth red, are a conspicuous feature in the later Summer and early Fall displays of many of our hardy borders. More recently I have seen this sedum occasionally used for mass effects with surprisingly good results. *Sedum kamtschaticum* and *Sieboldi*, both hailing from the Far East, are special



Sedum spectabile

favorites for dry wall planting, while *Sedum obtusifolium* and the tallest growing of all, *Telephium purpureum*, with their large brown or reddish brown leaves, are very interesting subjects for collectors. All the stone-crops have figured prominently in rockgarden plantings. Being late flowering, their red, pink, white, and yellow blossoms very noticeably brighten color arrays in gardens of our northern states. South of New England vividness of hue diminishes perceptibly. According to my observation the species *album*, *kamtschaticum*, *Sieboldi*, *spectabile* and *spurium*, throughout the Middle Atlantic and Southern States, thrive also in light or partial shade.

Whoever contemplates using stone-crops for ground cover should enrich and prepare the soil to the same depth as required for a first class lawn.

Herbaceous sedums are raised from seed or propagated by cuttings or division. Evergreen species are divided and replanted any time during the growing season.

The nations must be behind the statesmen, and that can only be if the nations are educated to distinguish between right and wrong in international as well as national affairs. Such capacity to distinguish is the ultimate sanction of law.—*Public Opinion*, London, England.

Gardens of Annual Flowers in Shades of One Color

FLORUM AMATOR

THE majority of people, probably, like to have in their gardens flowers of many colors, but a considerable minority prefer to have flowers in shades of one color in their garden, making a more pronounced effect, rather than to have a motley of colors.

The effect of flower gardens in shades of one color is enhanced, however, by edging all of their beds and borders with low-growing plants whose flowers are of a different shade of color bringing out more sharply by contrast the main or body color of the garden. We will mention to illustrate our idea what may enter into the composition of one garden of this kind, for example a garden in yellow, the color of the glorious sun which we all love.

In the northern border of our yellow flower garden in the extreme background we will plant a row of the *Chrysanthemum*-flowered Sunflowers and in front of these a row each of the *cucumerifolius* varieties of Sunflowers such as "Stella," "Orion," and "Perkeo." The *Chrysanthemum*-flowered variety, is tall and bears large double, golden yellow flowers with twisted petals; the other three are single varieties with smaller flowers those of "Stella" being golden yellow with a black center, "Orion" yellow with twisted petals like those of a Cactus Dahlia, and "Perkeo," which is a continual bloomer, grows in bush form not more than 12 to 14 inches high and bears miniature yellow flowers. This northern Sunflower border we will give an edging of *Ageratum*, "Swanley Blue," which grows about a foot high, and bears bright flowers.

In another bed we will plant *Hunnemannia fumariifolia*, sometimes called Giant Tulip Poppy or Bush Eschscholtzia whose Buttercup-yellow, Poppy-like blooms are borne profusely from mid-July till hard frost on bushy plants about two feet high with handsome fern-like foliage. We will edge this bed with *Ageratum*, "Princess Pauline," which grows about nine inches high, and has sky-blue flowers with white centers. We will have one bed of African, and another of French Marigolds, using those varieties only which bear flowers in shades of yellow and we will edge this bed with *Ageratum* "Little Blue Star," which grows about five inches high and bears bright blue flowers.

Surely there must be one bed in our garden of that old time favorite, *Calendula*, "Pot Marigold," or "Shakespeare's Marigold," which during the past few years has become very popular as a florist's cut flower. Of this also we will plant only those varieties which bear yellow flowers and we will plant as an edging for this bed another old time flower, namely, *Myosotis palustris semperflorens*, the true everblooming Forget-me-not, which everybody loves.

In order to have every flower in our garden which bears the common name Marigold we may plant a small bed of *Tagetes signata pumila*, a compact dwarf bushy Marigold with fern-like foliage bearing profusely bright yellow flowers with brown stripes, and since this is a very low-growing plant we will use as an edging the very dwarf *Lobelia compacta*, "Crystal Palace," which has dark blue flowers.

Our bed of *Calliopis* will embrace only the yellow shades, and that of *Gaillardia* the same shades of color and as these two kinds of flowers resemble each other to a considerable degree, we will use as an edging for

both beds *Browallia nana compacta*, a charming little blue-flowered plant.

The yellow varieties of *Celosia plumosa*, the newer, plumed type of the old time "Cock's Comb," particularly what is known as the *Thompsonii magnifica* strain of the plumed type, will give us a yellow bed of flowers of an entirely different character than the others. This bed we may give an edging of *Browallia speciosa major* whose flowers are a beautiful ultramarine-blue.

Zinnia plants have not a very graceful form but somehow their very primness makes us like them, and a bed of the yellow-flowered varieties with an edging of *Lobelia*, "Emperor William," will add both to the variety and the effectiveness of our yellow garden.

All of our beds so far have been filled with the well known flowers, but we will now fill a bed with a kind of flower not as commonly seen as its merits deserve, namely, with *Bartonia aurea* whose very bright golden flowers appear from June to September. This *Bartonia* grows only about a foot high, and we will edge this bed with *Lobelia pumila splendens* whose flowers are dark blue with a white eye.

Salpiglossis, "Painted Tongue," is becoming popular in our American gardens, and deservedly so, and we will plant a bed of golden yellow *Salpiglossis* of the orchid-flowered strain, and edge our bed of this with another very pretty but in our country too little seen flower, namely, *Viola cornuta* using the dark blue variety, sometimes called *atropurpurea*; if we were planting a blue garden we would have an entire bed of this and of the light blue variety of *Viola*.

One bed in our garden should be planted with low-growing, free-flowering annual, *Eschscholtzia* (California Poppy) preferably with the single variety "Golden West" and the double variety "Crocea" and for an edging to this bed, since *Eschscholtzia* itself is a rather dwarf plant, we should have a very low-grower, and we will again use *Ageratum*, "Little Blue Star."

We now have a garden of yellow-flowered annuals edged with low-growing blue-flowered annuals which will give us a two-fold result, namely, an abundance of flowers in yellow shades for cutting throughout the season, and a splendid display of yellow to greet the eye on every hand as we walk through our garden paths.

One thing is sure, whatever the color of the flowers in our garden may be, we should reserve one bed or border in it in which to grow sweet-scented greens for our bouquets, namely, a half-dozen or more of Rose-Scented and Lemon Scented Geraniums, of *Aloysia citriodora* (Lemon Verbena), a dear old plant the fragrance of whose foliage is fit for angels.

It will be necessary to buy strong plants of the Geraniums and Lemon Verbenas in three- or four-inch pots out of which they can be transplanted into the garden bed. Besides these we should sow a considerable space with Mignonette using the varieties "Allen's Defiance" and "Machet."

It may not be amiss to say in closing that our garden should be dug deeply and the surface soil be made as "fine as silk" and our flower seeds sown in early May rather thickly in very shallow drills and when the plants are still small they should be "thinned out" ruthlessly so that those which are left will stand from three inches to a foot apart according to the kind of plant whether large or small.

Michaelmas Daisies

WILLIAM FOLLETT

WHEN one considers the many good qualities possessed by the perennial asters, commonly known as the Michaelmas Daisies or Starworts, no wonder arises that this flower has been for many years and continues to be very popular in western Europe, and that it is fast coming into its own in its cultivated and improved forms on this side of the Atlantic. It is everybody's flower, being easy to grow; gives quick and good results at a minimum outlay; produces in most cases large, graceful sprays of daisy-like flowers; is unsurpassed for house decoration, and for brightening up the herbaceous borders, shrubberies, and other garden spots.

In the Michaelmas Daisy we have shades of color enough to satisfy all tastes, ranging from the whites and the palest blues through the varied shades of lavender, deep blues and violet to a rich purple; and from delicate pink to crimson, including shades of mauve and lilac so often sought. Two other points in favor of this beautiful flower are its great range of height and the period of its blooming; varying from the Alpine varieties we so often see in rock gardens blooming in May and June and attaining a height of less than a foot, right on to *subcarulea*, the large purple flower with a golden centre, which though borne on its stiff, upright stem in June when there is an abundance of flowers, cannot fail to attract attention. Then with a short break in July, certain varieties bloom on through the Summer and Fall months and often in November. After a frost which has cut down the blaze of colors supplied by dahlias and other more tender perennials and annuals, the Michaelmas Daisy still blooms.

No perennial is more entitled to the prefix of hardy than is the aster, and the fact that the parents of most of our much admired varieties of today are natives of North America should not deter anyone from getting together a splendid collection. The fact of helping Nature to produce better flowers in the locality for which she intends them, should be a sufficient guarantee of satisfaction to the grower.

Although the aster will stand much abuse, neglect in its cultivation is not justified. One can often see a large clump which evidently has not been divided for years, and sometimes the soil itself has passed from the firm stage and become very hard. The Michaelmas Daisy will thrive in almost any soil and situation, but generally does best in a fairly light soil and full sun. The taller varieties benefit by a certain amount of shelter from the wind, but if grown in a wet soil or in too much shade, the flowers are not borne in profusion.

The strong growing sorts are better if divided each year; with the others, every second year will suffice. The best time to divide the clumps is in the Fall as soon as the flowering is over, and when this is done, the beds should receive a good mulching of straw manure and leaves before the severe weather sets in, to prevent the clumps from being loosened and drawn out of the ground by the frost. The litter remaining in the Spring should be removed as soon as the weather opens, the remainder of the mulch being forked into the soil. The clumps can be divided in the Spring, but they would start at a disadvantage to those moved in the Fall, the latter having made nice roots, so that for really fine blooms it is advisable to lift one old shoot of each variety in the Fall and winter it in a cold frame. In early Spring break up the old shoots and sort out the rhizomes, putting three

or four in a four-inch pot and growing along cool. When ready, plant them where they are desired to bloom without breaking the ball of soil. Where mass effect is desired the first year, they should be planted closely; how closely must be governed by the number of spikes to the pot and the habit of the particular variety planted.

When dividing a clump of long standing, retain only the outside portions, the centre of the plant, if not already dead, will only produce spindle-like growth.

When thinking of propagating, it is well to remember that the Michaelmas Daisy can be easily raised from seed. However, as seedlings cannot be relied upon to come true to color, they must be left out of any color scheme. Anyone sowing seed outside, or in a cold frame early in Spring, will undoubtedly derive much pleasure and interest in watching the flowers (often quite distinct from the parent) open in the Autumn, even if he does not secure any decided improvement to add to the already long list of varieties.

Though the plants are sheltered from high winds, it pays to stake the asters. This should be done when the stems are about half their mature height, and if a little care is used in placing the supports, within a week the stakes will cease to be an eyesore. Brushwood such as is used for peas is sometimes employed, but the neatest and most convenient when cutting is to place straight stakes close to the clump and run about a strong, soft string.

Although the Michaelmas Daisy is a native of this country, it was in Great Britain that the work of hybridizing and improving it was first carried on to any great extent. About twelve or fourteen years ago, a number of good varieties were raised, including *acris*, *albus*, *roseus*, *ericoides*, *superbus*, and many more which still remain in spite of new ones each year. Of the newer varieties, one's mind naturally turns to "Beauty of Colwall" which heralded the double form, and with its mass of lavender blue flowers on stems about four feet in height, opening in September, it certainly is a thing of beauty.

For those who prefer pink, there is "St. Egwin" with its lovely shade of pink seldom seen in the asters. It is not quite as tall as the preceding variety but of more bushy habit and is a general favorite. "St. Egwin" is one of the *Novi-Belgii* type as are so many of our best asters. Two other types always popular are the *Novæ-Angliæ* and *Amellus* of which the majority flower during August and September, notable exceptions being the good old stand-by, "Mrs. J. F. Rayner" (crimson), "Baldur," and "King Edward VII" which as a rule open in October. There are so many really excellent varieties it is impossible to name them all, but among the favored are *Novæ-Angliæ* and its varieties *ruber* and *roseus* which often reach six feet high and flower during October and November. In contrast comes "Esme" of the *Novæ-Belgii* class which attains slightly over a foot in height, the compact little plant being covered with large white flowers. *Novi-Belgii*, "Climax," lavender blue, and "Feltham Blue" are deserving of being in every collection, as does also "Mauve Cushion," a dwarf bushy plant which has large mauve and silver flowers in October and November, varying on the same plant from a few inches high on the outside to nearly a foot in the centre of the plant, hence the name.

(Continued on page 23)

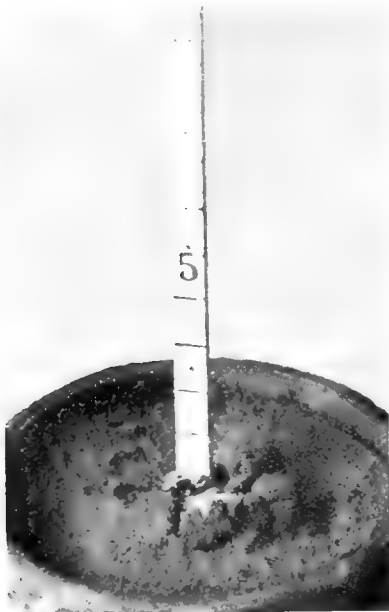
From Seed to Seedling and Planting

DR. E. BADE

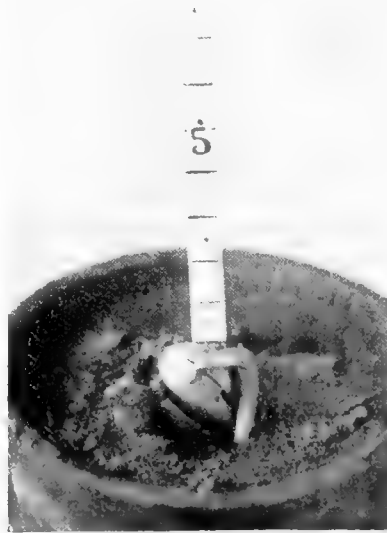
A LONG the old dirt road which winds itself through meadows and fields, a bean has been lustily climbing upon the rough rail fence through the Summer months. How it ever came to this lonely spot, forsaken by all its kind, who knows? At any rate it was still here in the Fall sturdily, twining itself about the woodwork, still flowering indefatigably. It ripened its fruits which were filled with seeds and had no thought for the coming Winter. The first frost of the Fall attacked its vital spark of life, bringing it to its death in one night. The moisture was taken from the leaves by the moody winds. The Autumn sun burned everything brown, even the seed shells and after they were completely dried, they burst. Loosely and white, like shining teeth, the full fruit hung; for their production, the entire life of the plant was devoted. Although the old plant

the seed coat bursts; the tiny root peeks shyly forth, and as they grow larger, they seek for the easiest and quickest way of disappearing into the soil.

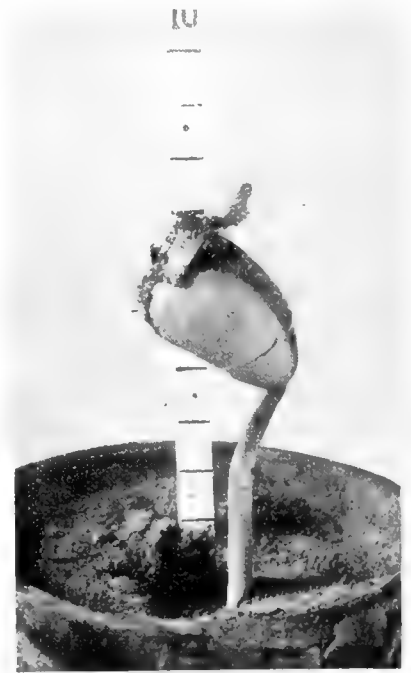
It makes no difference in what position the seed may lie, the root always grows downward. If the seed should lie in such an awkward position that the root must grow upward in order to grow out of the seed, then it grows in a semicircle back to the earth as if it were afraid of the sun. The primary roots have the power of growing downward. This is the result of gravity acting on all parts of the plant organism, and this force requires a growth in the direction of the earth's center, growth in a vertical direction. If under any circumstances the root should be placed in a horizontal position, then the



Germinating bean seed breaking through the soil.



The bean two days later.



The germinating seed four days after breaking through the soil.

died in its full development, it had accomplished its purpose in life and the next year will see still more beans twining their green vines about the old fence.

It is a peculiar thing, such a seed. When taken in the hand and examined, it does not show the least trace of life; it seems to be a dead thing, no more alive than the frost killed mother plant. In spite of this the seed is not dead; but only awaiting more favorable conditions under which it can unfold itself. For this dormant life in the seed, the mother plant has fully provided and has worked diligently to give the seed everything that the young seedling may require during the first stages of its life. The embryo is the only thing which is tiny but the food cotyledons between which the seedling is placed, are large and rich. This tiny embryo has its root, stem, and a pair of leaves.

The cold winds of northern storms and the Winter's icy breath pass the seed uninjured. But when the air is balmy and warm, when Spring loosens the moist and frozen soil, then is the period for germination. The seed eagerly absorbs all available moisture; it swells;

force of gravity, acting on the growing cells which lie just back of the root tip, produce a curvature in the root so that it grows downward again.

The root is afraid of, and always turns away from, the light. But that region of the root which perceives the force of gravity is entirely different from that part of the root which resolves the force, or the response of this stimulus into action.

Only the youngest cells of the cylindrical root tip are sensitive to gravity as well as chemical and physical stimuli. This section is only a few millimeters in length, and the response is found at a place about one quarter of an inch above the place of stimulation. Here the root is curved so that it points downward, and this is accomplished by an unequal growth of the upper and lower epidermal root cells. The tip of the root is protected by a root cap which is similar in shape to the thimble of the dressmaker, and it protects the delicate tissues as it penetrates the soil.

The root fulfills a two-fold duty for the plant: First, it anchors to the soil, and second, it absorbs soil moisture

containing mineral salts in solution necessary for the life of the plant. For the latter purpose the roots have innumerable tiny hairs just behind the growing tip capable of absorbing moisture through their cell walls. The water, containing mineral salts in solution, is transferred from cell to cell until the conducting tissues of the root are reached. From here they are taken to all parts of the plant, especially to the leaves, where, in the presence of chlorophyll, carbon is taken from the air and mixed with the water and salts and thus organic matter is produced in sunlight. Without the chlorophyll found in the leaves, the plant can not utilize the mineral salts in solution of the soil waters.

The young seedling which we have just left through this necessary digression, as it was about to bore its roots into the ground, can not use the salts absorbed with the moisture for the production of food. But growth is not possible without the assimilation of food. Therefore it utilizes the cotyledons and draws its food from them until the first pair of leaves have been fully

finished organic products are led to the various parts of the plant. All surplus water evaporates through the stomata.

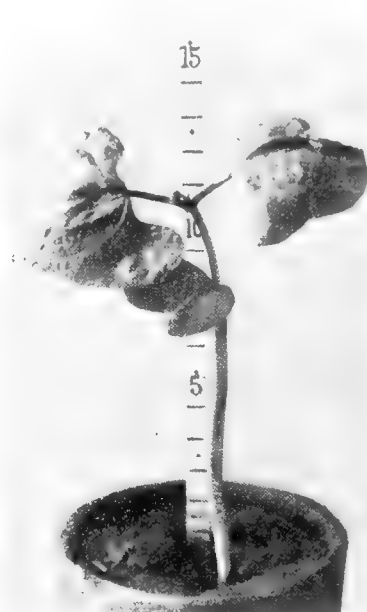
The entire plant consists of a series of carbonaceous products which it has produced but which do not all consist of carbon dioxide and water alone. In the green chlorophyll containing tissues of the leaves, carbon dioxide from the air and water from the soil produce formic acid, an organic substance, and during its manufacture free oxygen is given off as a waste product. Further transformation takes place; the formic acid is changed to formaldehyde and more free oxygen is produced. Finally grape sugar is manufactured. This procedure is dependent upon a sufficient quantity of daylight, and does not take place at night. But the first tangible product produced is starch which is found about the grains of chlorophyll. This starch is the most important product, and from it, the plant does, with the aid of other salts, produce nearly all other plant materials. The most essential are the carbohydrates, sugar and



A day later the first leaves begin to unfold.



The next day the leaves are unfolded.



One day later the new shoot has begun its development.

developed. Now an uninterrupted stream of water passes through the plant from the roots to the leaves, which is then manufactured into food material with the aid of soil salts.

The explanation for the rise of the sap is complicated. It is not dependent upon any one factor but upon many. Some of the more important are the transpiration or evaporation from the leaves which causes the water to rise in the conducting tissues, *i. e.*, it pulls the water upward, the osmotic pressure of the roots which forces the water upward, also the diffusion of liquids and the turgidity of the cell which have their effect. Then there is the imbibing and absorption of liquids through the various membranes of the cell, and the capillary attraction which plays a far greater part than is supposed since the conducting tubes are microscopically thin. There is also the cohesive force of water which, in a very thin tube, as experiments have shown, is excessively large, hundreds of pounds' pull being necessary to force the hairlike column of water apart, etc. The sap, when it arrives in the leaves, is manufactured with the aid of chlorophyll and the carbon dioxide of the air into organic material which is used by the plant for the purpose of reconstructing and building up of new tissues. These

cellulose, then the fats, and finally proteids of which asparagine, especially found in asparagus, is the most important. These three groups are sufficient for the production of all plant organisms.

The wanderings of the products manufactured in the leaves and in other places to those places where they are either stored or used is most complex as the plants do not have an open circulation and transportation system. Transportation must proceed through those closed cells which only too often close the conducting tissues.

The only place where the translocation of substances can be directly observed is in the leaf and the only substance which can be observed is starch. In order that it may be transported from one place to another it must first be prepared for its journey, which is accomplished through enzymes. These are peculiar substances with only partly known chemical composition and having the property of transforming large quantities of material into a soluble form, that can pass through the well wall. This soluble material is changed back again to starch after it has passed through the wall, thus disturbing the equilibrium of the surrounding cells which then pass more sugar into this cell. Therefore the starch is not carried

(Continued on page 17)

Beautifying Home Surroundings

ARTHUR SMITH

IN presenting one or two articles upon the above subject, we propose to deal with it briefly from two main aspects, the underlying principles and the practical carrying out of those principles.

While the whole practice of Horticulture is undoubtedly an Art, that part of it known as Landscape Gardening calls for the fullest appreciation of, and the carrying out of the highest artistic principles. We use the term Landscape Gardening in preference to that of Landscape Architecture, for the simple reason that Architecture, in its proper sense, as being the art or science of building, has in itself no direct connection with gardening. It is fashionable we know in some quarters to use those calling themselves Landscape Architects to plan home grounds, parks, etc., but the term is really a misnomer, as architecture in its true sense deals only with inanimate materials, like wood and stone, and these with other dead things can be combined artistically or the reverse. If one desires a somewhat higher-sounding title than Landscape Gardener there appears to be no objection to that of Landscape Artist, although this may quite as well refer to one capable of arranging colors so as to produce a beautiful picture upon canvass, as to one who can create the same thing upon the surface of the ground by using living plants.

Landscape is eminently a fine art. The enumeration of painting, sculpture and architecture as the only fine arts is seriously deficient, although it has wide currency. A fine art creates organized beauty, unites many dissimilar parts into one harmonic whole. In this respect landscape gardening stands upon a level with other fine arts, and in some respects it even surpasses them. The fact that some who practice landscape art are absolutely wanting in artistic taste does not affect the question, as the same deficiency is to be found among followers of other arts, although unfortunately the landscape gardener or the landscape architect can get away with and get paid for, inartistic work with greater ease than the others.

To some people the art of landscape gardening is only applicable to landed estates and public parks. This, however, is far from being the case, in fact from some points of view, it is more difficult to handle artistically a very small piece of ground than it is an extensive area. The fundamental principles of landscape gardening may be applied to home grounds regardless of their size. No matter how small and modest they may be there are rules to observe if you want your surroundings charming and attractive.

Mrs. Van Rensselaer, in her delightful book, *Art out of Doors*, which deals with the theory but not with the practice of landscape art, wrote: "If now we ask when and where we need this Fine Art, must not the answer be, whenever and wherever we can touch the surface of the ground and the plants it bears with the wish to produce an organized result that shall please the eye. It does not matter whether we have in mind a great park or a small city square, a large estate or a modest doorway, we must go about our work in an artistic spirit if we want a good result. Two trees, six shrubs, a scrap of lawn and a dozen flowering plants may form either a beautiful little picture or a huddled disarray of forms and colors."

A good deal is heard from time to time regarding various "styles" of gardens. Some large places have

their so-called Dutch garden, Italian garden, and so on. To the uninitiated, these names may have a superior sound, but they generally mean nothing, and I have yet to see an Italian garden in this country which has any special or real relation to the typical gardens of Italy. There is of course no particular harm in extensive grounds containing different gardens entirely separate from each other, laid out in different manners and giving them any name one desires, so long as the artistic unity of the whole is not impaired; for after all, "What's in a name?" It does not matter a great deal what kind of designation is given to any particular garden, the main thing to be considered is whether it is artistic and has been laid out with good taste, an harmonious whole, having for its fundamental principle, naturalness; or on the other hand if it contains numerous discords, has stiffness and formality for its basic principles, and is therefore unnatural. Producing a garden of the latter kind is not landscape gardening at all, inasmuch as it has nothing in common with landscape, although such gardens are unfortunately frequently planned by those calling themselves landscape architects. In this connection a definition of real landscape gardening suggests itself namely that it is the art of making a garden which shall be a landscape or picture.

There is no reason why we should not have true art in the garden, and no reason why a garden should be ugly, bare or conventional. The word art as used here is "power to see and give form to beautiful things" and this is based on the study of and love for Nature. The work of the artist is always marked by its fidelity to Nature, and all deviation from the truth of Nature, though it may pass for a time, is, in the end, classed as *debased* art.

There are people who object to the term "natural gardening" as being inexact, inasmuch as no gardening result is absolutely natural, but at the most only naturalistic. While to some extent this may be true, at the same time the word natural is used in contradistinction to that of unnatural, for behind the contents of a natural garden sits primeval Nature, but Nature "to advantage dressed"; Nature stamped with new qualities, led to new conclusions by man's skill in selection, and artistic combination. A natural garden is man's transcript of the woodland world; it is common vegetation ennobled; wild scenery neatly writ in man's small hand, and is Nature's rustic language made fluent and intelligible.

As there is no good picture which does not portray the beauty of natural things, so no garden from a landscape point of view can be good unless it groups living things from a natural way. By this it is not meant that we should reproduce in a garden exact fac-similes of Nature's plantings, but that by adopting the fundamental principles set forth in the wild growth of herbs, shrubs and trees, we shall be able to see and feel everywhere in our gardens the spirit of Nature softened and refined by Art. Whatever the character of a natural landscape, discord is unknown for everything in Nature always harmonizes, and it is in the avoidance of discords that the landscape gardener shows his skill more than in any other way.

In creating a home—by the word home we mean a house and its accessories, with the surrounding grounds—it is obvious that some unnatural features must be introduced,

and naturalness is therefore to a greater or lesser extent lost by the erection of buildings, the making of drives, walks, &c. In the nature of things in the country these features must form part of the home landscape, and it is important that the house, whatever its size, should harmonize with its environment. Too often one sees residences more or less palatial set in the midst of puny, insignificant surroundings, the house being several times too large for the garden, and quite as frequently an artistic landscape is seen to be spoiled by mansions the reverse of artistic and which are merely examples of vulgar ostentatiousness.

A style of architecture suitable for a private house or a public building in a city, or for an institution, where the architectural features of the buildings are the only things to be considered, is quite out of place as part of a landscape. A country house should not only be in harmony with the country, but its size should not be altogether out of proportion to the grounds in which it is set, and it should be as simple and unobtrusive as possible. It is these latter characters which enable such charmingly artistic effects to be obtained when the house is built on the bungalow style, and it is certainly a source of pleasure to all lovers of the beautiful to see that this kind of house is becoming at the present time more popular; apart from artistic considerations, those who have ever lived in a properly designed bungalow prefer that kind of house to any other. The next best style for harmonizing with the country, when a house of more than one story is desired, is that known as the half-timbered. The objection sometimes heard that houses built in this manner are not lasting has no foundation in fact, as we know of many that were built over three hundred years ago which are today perfectly sound.

But after all it is the undue prominence that is given to the house which offends the artistic eye. A country house may be as roomy as the owner considers necessary for his requirements, but large piles of brick and stone several stories tall are out of place in connection with a country home. Many instances have come within the writer's knowledge, where, after erecting a large residence, the owner has expressed himself as being unable to afford to do much in the way of planting the grounds surrounding it; cases of this kind are unfortunate examples of the want of good taste.

In the country the style and size of the house should have some relation to the ground surrounding it, otherwise the creation of an artistic home is impossible. One would not buy a landscape painting in which four-fifths of the canvas was taken up with the portrayal of buildings, although no artist would be at all likely to paint a picture of that kind.

Frequently the landscape possibilities of a home have irreparable harm done to them by the manner in which the house is placed upon the ground, even when such is in itself artistic, and in this connection much good could be done by the designer of the house and the landscape man getting together before anything is done even when the smallness of lot does not leave much room for choice in position.

Then, too, considerable more harm is frequently done to the features of a home as a complete artistic unity by the designer of the house inducing the owner to consent to the erection of more or less numerous *detached*, heavily constructed pergolas about the grounds, a practice which appears at the present time to be unfortunately upon the increase. Among several new homes I have recently come across with this bad feature connected with them, there is one in which the surroundings have been especially spoiled by this means. The area of the place is scarcely more than half an acre in extent and

although the house is really too large for the ground it is an artistic one and constructed in such a manner and of such material as not to present any loud note of discord. But the whole thing has been blemished by four or five pergolas being stuck about. One has been placed in the center of the front lawn and is of heavy timber upon a brick foundation; altogether an element of unnaturalness has been introduced of a grossly pronounced and discordant character. These pergolas or trellises are always irreconcilable with a tastefully laid out garden and are really as bad there as billboards are in connection with natural landscape. When they form part of the house, or are connected with it in creating a covered way over a much frequented walk leading to somewhere they are not so much out of place, especially if so constructed as to be easily and quickly covered with plant growth. While a summer-house is an unnatural feature it may be so placed and camouflaged as to be a pleasant spot in which one may sit and quietly enjoy the beauties of the garden even on a wet day if the roof is rain-proof. On the other hand a summer-house may be, and often is, a very monster of ugliness.

But any of these features, of whatever character or construction, and wherever placed, are always excrescences and points at which naturalness is more or less lost, and which, therefore, require careful treatment and thoughtful good taste to adapt them quite to the best interests of the complete unity of the natural composition.

If landscape gardeners possessing real artistic tastes were more often called in to advise upon the whole scheme of home creation there would be fewer eyesores about the country. More often than not landscape men are handicapped at the onset of their work by what has been done by other people previously to their seeing the place. It is of comparatively little use creating harmonious effects about one part of the home if loud, discordant notes are always in evidence at other parts. The effect of the want of complete harmony thus produced is frequently felt even when the cause is unknown to the individual having this feeling. An estate owner once said to me: "We feel there is something wrong here, but don't know what it is." So long as a feeling of that kind exists it will be impossible for anyone to gain the full benefits from a home in the country that would otherwise be the case as it is scarcely possible for exhausted nerves to gain much vigor when continually surrounded with discords. It is therefore of the first importance to realize that something more than a well laid out and cared for garden is necessary for the creation of a completely harmonious country home.

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Desert Vegetation

WILLARD N. CLUTE

IF you leave it to the dictionary, a desert is a region almost destitute of moisture and vegetation but this definition does not entirely satisfy the botanist. He knows of various regions on the earth where, notwithstanding an abundance of water, plants are few and far between, and on the other hand, he is familiar with the fact that many other areas, regarded as deserts, may be veritable flower-gardens for part of each year. In the Arctic regions and on mountain tops, for instance, there is plenty of water but in a form which plants cannot use. There are other soils in which a considerable amount of salt prevents the growth of plants, just as we put salt on grass to kill it. Nor are all regions in which there is a heavy rainfall regions of luxuriant vegetation. In many cases the rainfall runs off so rapidly, or sinks so deeply into the soil, or evaporates so quickly that plants can get little of it. In still other regions the moisture may fall during the colder part of the year instead of in the growing season. From these considerations we perceive that a desert is not primarily a region of little water, but a region in which little water is available to plants. There are clearly two kinds of dry soils: the physically dry soil that is actually dry and the physiologically dry soil that may have plenty of water and still be dry to plants. In either case the conditions give rise to desert vegetation.

It is usually the physically dry soil that one thinks of when the desert is mentioned. There are many such in the warmer parts of the earth. They are commonly located behind mountain ranges that cut off the moisture-bearing winds, though sometimes that is due to the fact that the prevailing winds blow from regions where there is little moisture to begin with. The extreme type of such an area in the cactus desert in which only the most resistant plants like the cacti, yuccas, and agaves can exist. The soil here is never covered with vegetation, partly because of the difficulty new plants find in getting started and partly because of the unfavorable conditions for life afterwards. The soil itself is often quite fertile and yields abundant crops when supplied with water as we see in the irrigated regions of our Southwest. Left to itself, however, vegetation assumes very curious and interesting forms. The stems are either condensed as in the various species of cactus, or underground as in the yuccas. Leaves are usually small or absent and the work of food-making is carried on by the stems. When the leaves are present, they are likely to resemble those of the yucca with a hard thick epidermis that effectually retards evaporation. A few species produce thinner leaves during the rainy season and drop them promptly at the first signs of dessication. "Switch-plants" with slender leafless stems naturally abound.

The roots of desert plants spread widely through the soil ready to absorb any moisture that falls and not frequently acting as storage organs for it. In a majority of the plants, however, the storage organs are above ground in stem or leaves which are often greatly thickened for the purpose with special cells for holding the water and a mucilaginous juice to aid in preventing evaporation. Nearly all desert plants have a grayish appearance which may be due to a protecting coating of hairs, scales or waxy matter. The epidermis also may be thickened to form a layer of cuticle and the breathing pores, or stomata, are small and commonly sunk in the tissues of the leaf.

When the desert has a distinct rainy season, large

numbers of short-lived annuals may appear. These spring up, ripen their seeds and complete their life cycle before dryness overtakes them. Such species are usually "rosette-plants" with leaves radiating in all directions from the top of the stem which does not rise above the soil. The dandelion is a good illustration of a rosette-plant in more hospitable regions. Other species with a longer term of life avoid the extreme heat and drouth by casting off their aerial parts during the dry season and retreating under ground, as it were. These are known as "geophilous plants." A few mosses, lichens and fernworts simply dry up until a moist season returns when they resume growth again. Some of these are sold as curios under the name of "resurrection plants."

Extreme dryness, is not the only noticeable characteristic of the desert. Owing to the lack of moisture, clouds are few and the insolation great but the heat is not oppressive because of the general dryness. Because of the absence of moisture, also, the air and soil cool very rapidly after sunset and may become decidedly chilly before morning, even in the height of Summer. The great differences in temperature that thus develop cause high winds which blow the sand into hillocks and dunes leaving large areas absolutely bare of vegetation. Sand-storms, that oblige one to suspend all travel until they pass, frequently occur. The water-courses may be numerous, but they seldom contain water except immediately after a rain. Here and there in the desert, the water comes to the surface in springs or seeps and the adjacent area takes on some of the aspects of more fertile regions. Elsewhere the plants form low grounded clumps and give the whole landscape a tufted appearance.

In desert regions with a distinct rainy period, the cactus desert gives place to very different forms of plants known as *sclerophylls*, with small hard leaves which may be retained throughout the year. The well-known greasewood, rabbit-brush and sage-brush, and various species of *Atriplex*, form the major part of such vegetation forms though there are survivals from the cactus desert such as the prickly pear, numerous yuccas, and the ever-present Mormon-tea or joint-fir. In the direction of heavier rainfall this sort of desert merges into the plains and often contains a number of hardier species of other regions such as the thistle, tumble-weed, evening primrose, milkweed, sunflowers and other composites. The one-seeded juniper and the piñon pine may be found in scattered clumps but everywhere the woody vegetation has a stunted and starved appearance with an abundance of thorns and prickles.

Coming to the deserts of moist regions we find excellent examples in the dunes which the wind often piles up in sandy places. These are deserts due in part to the sterility of the soil and in part to the fact that the rainfall soaks into the soil so quickly. The interior of the dune is often, perhaps always, moist and dune plants have long roots adapted to securing the moisture from an extensive area. A peculiar flora characterizes the dunes. Among typical plants are the sand violet, the hoary pea, the huckleberry, wintergreen, sand cherry, bayberry, sweet fern, bear berry, butterfly-weed, beach grass and such trees as cottonwood, jack pine and black oak. Rosette plants and switch plants are common and mingled with the other vegetation the prickly pear persists.

The cliff is another kind of a desert due to its general

imperviousness to moisture. Though often closely associated, the floras of dune and cliff are usually quite different, though some species may grow in either place. The cliffs support a large number of "crevice plants" which are in reality rosette plants with long slender roots which they send into the crannies in search of moisture. The harebell and various columbines, saxifrages and cresses are typical forms. Here are also found such "cushion plants" as pinks and phloxes in addition to mosses, ferns and lichens. In the cold deserts the mosses and lichens may form the bulk of the vegetation though there are often many cushion plants as well as rosette plants and mat-plants, represented by such forms as the gentians, primroses, phloxes, pinks and the like.

In regions where cold puts an end to plant growth for a part of each year, we find assemblages of plants known

as *tropophytes* or turning plants because for perhaps half of the year they have all the aspects of the plants of perennially moist regions while for the other half they appear like desert plants or xerophytes, dropping their leaves, disappearing underground, existing as annuals and in other ways behaving as desert plants do. Even in warm regions may be found certain kinds of tropophytes that drop their leaves because dryness stops their growth. There is one group of plants that may be represented in both regions. This is the coniferous group represented by the pines and their allies. The slender leaves with thick epidermis are admirably adapted to retard transpiration whether they be exposed to cold or drouth. They are practically desert plants and we may therefore find them on sand dunes, in the cold north, on rocky cliffs or in dry regions near the equator.

Telling Time by Flowers

BERTHA BERBERT-HAMMOND

*In every copse and sheltered dell,
Unveiled to the observant eye,
Are faithful monitors who tell
How pass the hours and seasons by.*

*The green-robed children of the Spring
Will mark the periods as they pass;
Mingle with leaves Time's feather'd wing
And bind with flowers his hour glass.*

(C. Smith).

AS the natural divisions of time are marked by the lunar month and the true solar day and solar year, so the variations in Flora's calendar are recorded by the change of seasons. Note of time is taken by numbers of blooming plants that possess the striking characteristics of opening and closing their blooms at a certain season or definite time of day. The Swedish botanist, Linnæus, observed this peculiarity in over forty varieties of plants, and is said to have utilized this property in forming a unique dial of flowers. Mrs. Hemans comments on the beauty of this idea as follows:

'Twas a lovely thought to mark the hours
As they floated in light away,
By the opening and the folding flowers
That laugh to the Summer's day.

Thus had each moment its own rich hue;
And its graceful cup or bell,
In whose colour'd vase might sleep the dew,
Like a pearl in an ocean shell.

Yet is not life, in its real flight,
Mark'd thus—even thus—on earth,
By the closing of one hope's delight,
And another's gentle birth?

Oh! let us live, so that flower by flower
Shutting in turn, may leave
A lingerer still for the sun-set hour,
A charm for the shaded eye.

Some years ago a gentleman residing in New Orleans who had closely studied this remarkable property of plants, constructed in his garden, which contained interesting plants from nearly every clime, a large floral clock in which are massed and carefully arranged in a circular bed twenty-four kinds of plants, each variety being planted

opposite to the hour at or near which its flowers would open. In this dial, the *Portulaca* which was chosen to represent twelve o'clock is said to have never varied more than ten minutes of the noon hour in the opening of its flowers. The old-fashioned Four o'Clock, dependable to represent the hour indicated by its common name, was planted in the proper position and the *Nyctago* was planted at five. The Evening Primrose appeared at seven and the evening hours were assigned to night bloomers, the midnight hour being graced by the *Cactus* known as the Night Blooming Cereus. Though not a part of the time-telling scheme, a large pair of vine-covered, wooden clock hands were added to give a more realistic touch to the design.

In more recent days, a French botanist is said to have carried out the bright idea of a floral timepiece by laying out a circular flower bed of twelve sections, intended to mark only the twelve daylight hours, beginning with the opening, at about seven in the morning, of the water lily and ending with the opening of the Evening Primrose.

If desired the idea could be worked out to a greater extent by noting also the span of life enjoyed by the various flowers utilized. By careful observation of the opening and the closing habits of plants, it is thus quite possible to construct a floral dial that will prove a fairly accurate time keeper.

FROM SEED TO SEEDLING AND PLANTING

(Continued from page 13)

in an unbroken stream of sugar but it is deposited and redissolved as it passes from cell to cell. In this way the starch is finally brought either to a place of storage, or to where it is to be used. It is probable that the proteids behave similarly, but they can not be observed.

The organic materials necessary for plant nourishment are not used without a change taking place; through chemical work they are turned into new and manifold products, a few of them being now made synthetically in the laboratory. The plant can not turn starch or sugar directly into proteids with nitrates or sulphates. Without a doubt many intermediate steps are necessary before the final product is reached. But the "how" and the "what" are still problems for the future.

Bonsai: Culture of Dwarfed Trees in Japan

KIYOSH SAKAMOTO

THE Japanese people love to rear flowers and herbs in a porcelain or earthen pot. Such a culture is distinguished by the name of "Bonsai" (literally, pot-cultivation). This domestic horticulture is a favorite hobby both for high and low throughout the length and breadth of the Empire. As for the size of the pots, used in this special art, these range from large ones to be carried about by several strong hands to small ones that will roll off at a slight push with a single finger. A pot portable with two hands is the most general size, as is easily inferred from the nature of the art.

The secret of the delight of "bonsai" lies in the reproduction of a piece of natural scenery in a tiny spot. Seen in such a light, mere rearing will not serve the purpose. A plant must be made to appear in a pot as if it were standing on a hillside.

"Bonsai" embraces many methods with special names respectively, according to kinds of plants and their different ways of rearing. For example:

(A) Solitary style: a single tree set up straight and towering in a pot.

(B) Twin style: a tree parting at or just above the root into two great trunks and looking like the letter "U" or "V" at a little distance.

(C) Bristling style: many branches coming up from the same trunk, with the appearance of a brush laid in a pot.

(D) Promiscuous style: several trees or plants of the same kind or of different kinds mixed so that a little piece of ground in a pot may appear like a plain or a hill.

(E) "Neagari" style: a fork-like root peeping high about the ground.

(F) Cliff style: the trunk and branches bent downward as will be seen on the surface of a hillside or a cliff.

(G) Half-cliff style: this is a mixture of a combination of the solitary style and the cliff style.

(H) Embracing style: a tree planted on a piece of rock and the foliage embracing the rock.

Pots to be used in "bonsai" should be carefully selected, and the choice depends upon contours and colors of plants. The pot and the plant must harmonize with each other. If you fail in this first step, the finest plant and the costliest pot will avail nothing.

Pots are as a rule of porcelain, or earthen. Their shapes are circular, square, oblong, oval, etc. Unfigured pots are in great favor. Dark-brown color is most desired. These dark-brown pots originated in China, but recently many imitations have been produced in Japan.

(a) The plant which harmonizes with an oval or circular pot must have a round profile, no ins and outs being seen along the lines from the top to the lowest branches.

(b) The square-shaped pot wants the plant to be long-branched in its lower part and remarkably short-branched in its upper part.

(c) The deep-bottomed pot is used to fit in well with the "cliff" style plant.

(d) *Rodea japonica* and the orchid are proverbially planted in the pots of genuine Chinese make.

(e) Water-plants and sea-weeds are placed in water basins.

Judging from the aforesaid statement one might imagine that "bonsai" costs pretty dear, quite beyond the reach of those of moderate means. Far from it. A pine-tree which you get for a few cents, if planted properly in a pot, will prove a feast to your eyes. The essence of the art lies in cultivation and method of protection. You will become a skilled "bonsai artist" only after many years of close study and experience.

The plants to be used in "pot horticulture" had best be reared from young sprouts. By this means you can mould them in any way or form you like. Young

sprouts can be had on occasion of your rambling in the fields or mountains. If you tend them with care for three years, you will be blessed with a little luxury for your eyes. Two years more, and your favorite plants will be the center of admiration from your friends and neighbors.

The sprout must have a shapely contour and fantastical branches. Its lower branches and the root are expected to be specially strong. The trunk should be as straight as straight can be. According to such a standard selection must be made.

The young plant is to be placed first in a rough-baked earthen pot. Such a pot makes irrigation easy and seldom spoils the root by the stagnation of water or fertilizer in the soil. Yet in Summer watering is indispensable at least twice a day.

The sprout, fresh from plain or hillside, usually has a straight root. When you transplant this into a pot, you must not forget, first of all, to cut to a proper length and then put the plant into a deep pot after the remaining root is coiled. The soil in the pot should be a compound of 60 per cent of ordinary soil and 40 per cent of decayed leaves; if the plant is taken from a deep valley among large mountains. If the plant happens to hail from a hillside near a village, 80 per cent of ordinary soil and 20 per cent of horse manure will afford a suitable culture medium. After all, the soil should be kept as near as possible to the natural soil native to the plant. A sprout that is one or two years old requires more fertilizer than its older brothers. If the sprout grows old enough to be provided with "chief" branches, "small" branches and "bag" branches (these three kinds of branches are indispensable elements in forming a piece of "bonsai" art), the next step to be taken is to transplant the plant into a larger pot. If you leave your plant in the pot too long, it will have its upper boughs strong and its lower boughs weak. On the other hand, to transplant it when too young is out of the question.

In the process of final transplantation special attention must be paid to the position of the plant. If you fail in this part of the procedure, you will do gross injustice to your pot, however much of a rarity it may be. If the top of the plant tends to the left, you should set it a little to the left side of the pot, and *vice versa*. To place your plant just in the middle of the pot is the last step you should think of taking.

To plant one tree in a pot is an easy thing, but to place two trees requires much skill and tact. In such a case you should select a tall tree and a little shorter tree. These two are to be planted, one a little nearer to represent a forest in miniature in this small world of a pot. The maximum to be used in a pot is ten plants of one genus.

The soil in the pot should be so heaped that the part where the plant peeps above the surface is the top of a small mound. The root of the plant appears a little above the top. The foot of the mound is a little lower than the brim of the pot.

To cover the surface of the soil with deep green moss largely contributes to the elegance of the potted tree. There are mosses and mosses; for example, the mildew-looking moss which grows on a forest tree among mountains, the beard-like silvery moss which is found on the shady side of a trunk, and what not. Whatever kind of moss you may select, the first thing you should keep in mind is to reproduce Nature in the pot.

If you find a group of moss suited to your purpose, shake off the clinging earth and dry it in the sun. The next thing to do is to tease apart the gathered moss easily and scatter it on the surface of the soil and give it a little watering. A good rain or two will deck the pot with a piece of verdure. It takes not a small quantity of time and labor to improve the appearance of a plant.

In Spring when the sprout begins to branch, you must take away all leaves except the upper two. In about a month new sprigs will come out, but these again must be got rid of. The remaining twigs will develop enough to bear some minor twigs.

The infancy of a plant is the best time to correct or straighten the ill-shaped branches. If you happen to find a sprig growing just where you wish it to come out, see that the sprig be tended with more than usual care, cutting off all other unwished-for twigs and thus making it easier for the pet twig to become large.

Spring is the season when the circulation of the plant-juice is most active; and so this is the best time for transplanting. Every "bonsai-ed" tree, whether it is growing on natural soil or in a pot, requires transplanting at least once a year. The following is one way of transplanting:

First of all, wash the roots clean. If you find any decayed matter among entangled threads on the roots, take that away, together with mould, which you will surely come across when unearthing a plant. The washing done, dry the roots and then set the plant in a pot. Take the pot out of doors in the day and indoors at night.

In Summer the scorching sun dries the soil rapidly and frequent watering is necessary. But beware of giving too much water at long intervals. Whenever you see the soil dry, don't neglect watering your pet plant. To tell you the truth, water somewhat prevents the plant from wearing "antiquated" color, but insufficient water soon kills the plant.

Transplanting can be done about the time of the autumnal equinox without impairing the beauty of your tree. But the sprouts coming out at this time ought to be nipped or they will mar the graceful appearance of the tree in Winter.

Watering should be avoided in Autumn lest it should rot the roots.

Those trees which turn red, such as maple trees and wax trees, are specially lovely in Autumn with their crimson leaves. If you want to retain the gorgeous color on the leaves, take care not to expose the tree to rain or dew after it begins to be tinted. When the dwarfed tree undergoes "hibernation," so to speak, the only care you should take of your pet plant is to keep the soil in the pot from freezing. For this purpose place the pot in the sun on fine days with a little watering before or after the noon.

The most effective way of fertilizing is first to make a slight hollow circle, two or three inches in diameter, around the root, and then pour fertilizer into this hollow on fine days. Just before the sprouting period and the period of propagation is the time when fertilization is more necessary than at other periods. When giving fertilizer to your tree, do not apply too much at a time, but give the plant its nourishment little by little. Old plants require more fertilizer than young plants.

For watering purposes, rain is most suitable; next comes the water drawn from the river. Water fresh from the well is not so welcome to the plant. The older the water, the more nourishing it is.

Trees adapted to this special kind of culture can be grouped into three main classes. If we add some shrubs that can be cultivated as pieces of "bonsai" art, we have

four kinds in all, namely, "leaf-cultured trees," "flower-cultured trees," "dwarfed trees" and "herbs." Space does not permit the giving of detailed description of the different methods of culture, according to each of these classes. Therefore I will here epitomize some of the most popular ways resorted to on this side of the Pacific.

In "bonsai" art red pines are in high favor, as they can be very tastefully cultured. They like to be planted on the red soil. The shelf on which they are placed should be set up in a well ventilated part of the garden. Beware of exposing them to rain. The soil should be kept as dry as possible and fertilized with powdered oil-cake.

Maple trees must be placed in a shallow pot. The soil to be used for them is red soil or mountain soil. They want much water. Therefore frequent watering is necessary. Fertilizer should be as thin as possible. If you leave the trees in the scorching sun in Summer, you will get the tips of their leaves brown. After their leaves have all fallen, their bare branches present a most graceful aspect.

The cedar tree has so many small branches that it is an easy matter to train it as you choose. The use of fertilizer is not necessary, but watering must not be neglected, as the tree likes wet soil. When you plant a cedar tree in a thin pot you have a deep valley in miniature before you.

The elm tree also branches profusely. Look at the tree after all its leaves have fallen. Even then you will find the thick branches interrupt the view beyond. In course of cultivation the root will become, in too many cases, thicker than the trunk. Then cut away the root, leaving about three inches from the top of the root, and transplant it in another place. Such a process will have the result of more small trunks coming up from the root, which is exactly what the "bonsai" artist wants the tree to do.—*The Canadian Horticulturist*.

"Truth," said Corot, "is the first thing in art, and the second and the third." But the whole truth cannot be told at once. A selection from the mass of Nature's truths is what the artist shows—a few things at a time, and with sufficient emphasis to make them clearly felt. You cannot paint Summer and Winter on a single canvas. No two successive hours of a Summer day are just alike, and you cannot paint them both. Nor, as certainly, can you paint everything you see at the chosen moment. Crowd in too much and you spoil the picture, weaken the impression, conceal your meaning, falsify everything in the attempt to be too true. Corot managed to paint to interpret life, mood and meaning of what he saw.—*Mrs. Schuyler Van Rensselaer*.

A PRAYER

Nettie Orcena Wolfley

Dear father, tend the garden of my thoughts,
 Thy dearest care,
 And uproot every weed and flower Thou hast
 Not planted there.
 Give me, to keep my paths and borders straight,
 Thy Golden Rule,
 To fashion them like his who left for men
 No sharper tool.
 Teach me to know at sight, in any guise,
 One noxious weed,
 The "root of bitterness" which, spring up,
 Bears evil seed.
 Warm with the sunshine of Thy love the soil
 Around each tree
 That, looking from the earth up toward Thy light,
 Bears fruit to Thee.

Christian Science 1921, 1.

Leaf Falls Without Frost Bite

AFTER a night's sharp frost in Autumn we are not surprised when we take our walk to see the ground littered with fallen leaves from every shade of yellow to hues of the deepest red or brown. In fact, we look expectantly for this sudden spreading of a leafy carpet as a natural sequence to the change of temperature, and quite as a matter of course we attribute it to the work of the nipping frost.

Before we take things so absolutely for granted let us take a little closer look into the matter and see what really takes place; for, after all, in their own good time surely the leaves would have fallen, even though the frost had never been.

Again, in tropical countries where rain does not occur for several months at a time plants act in an exactly opposite manner to those in our temperate regions, for their leaves fall before the hot, dry season, while in climates where no lengthy and alternating periods of hot and cold occur the "fall of the leaf" is a very inconspicuous event, as new leaves form and develop at the same time that the older ones are falling away, so that the trees appear, more or less, to be always in full leaf. Evergreens, in our own climate, present a somewhat similar case, but even these have to shed their leaves sooner or later, although in some cases they may last for several years.

It would, therefore, appear that some other potent factor or factors besides cold and frost must be at work at the time of leaf fall. Before we can make any progress toward this end, however, we must assimilate one important fact, namely, that the great engine which provides the motive power of all life, both plant and animal, is sunlight.

Now the leaves of plants are organs especially constructed to intercept rays of sunlight; every leaf of every plant is adapted, so far as circumstances and environment have permitted, to present to the sunlight as much surface as possible, hence we get endless forms of leaves on different species of plants, those forms fittest for the environment naturally surviving.

DIE BEFORE TROPIC DRY SEASON

Leaves are continually transpiring watery vapor from the stomata, or openings on their under side; this transpiration is, of course, kept more or less active according to the dryness of the surrounding atmosphere. In very hot weather it is apparent that transpiration would be most active, and this at a time when most inconvenient to the best interests of the plant, for then the soil would be so dry that it could not supply the increased demand made upon it. Hence it obviously follows that if a plant growing in a hot climate could dispose of its leafy raiment before the dry season, and so largely shut in the store of moisture that it then possessed, it would be adopting a most protective measure. Such is the way, then, by which, when the water supply begins to fail, such plants prepare to meet the situation, and, in due course, when the dry season arrives their leaves fall and the so-called "Summer sleep" commences.

Later in the season, when moisture again impregnates the soil and the water supply within the plant is naturally very low, the mineral salts in the plant tissues greedily absorb any moisture that comes their way, and so the young roots are incited to seek for greater supplies.

If the "fall of the leaf" before hot, dry periods can be so explained, what of our climate, where the exact opposite, a long, cold and damp period, occurs. We know

that the leaves fall before the Winter sets in, but that their fall cannot be associated with a lack of moisture is obvious. What, then, is the influence at work in this case?

Let us suppose that we have a delicate, sensitive plant growing as a pot plant and that we water the soil in which it grows for a few times with very cold water. Although the surrounding atmosphere may be most favorable to its development and the temperature of the soil well above zero, yet we find that the leaves of our plant begin to flag and soon the whole plant looks as if it had been nipped by the frost. What has happened? The very cold water has lowered the temperature of the soil so much that the activity of the roots has been interfered with, and as a natural consequence their absorbing powers have decreased. But the leaves in the warmer atmosphere above have gone on transpiring aqueous vapor as usual; thence the tissues have lost their water and it has not been replaced. So the plant shrivels up and dies.

At the same time also by disposing of their leaves trees avoid other serious dangers. Water in the tender tissues of the leaves during the times of frost would be most dangerous to the plant structure, for then it would become ice and with the expansion that takes place when water freezes the tissues would be ruptured. How dangerous such an enemy would be to the delicate vegetable cells can be readily demonstrated by the bursting of a water pipe when the water contained in it expands in the process of freezing. Another danger, overcome by the absence of leaves, is that of heavy falls of snow. Trees covered with foliage during heavy snowstorms get their branches sadly broken by the weight and the pressure of the wind.

It should be observed too, that trees in the lowlands retain their leaves several weeks longer than those of elevated mountain regions, even when of the same species. In the latter situations snow and frost often occur in the Autumn months, and consequently the soil is cooled sooner than that of the lowlands. From this we might suppose that these mountain plants would have to put forth their leaves several weeks earlier in the year than their lowland relatives. As a matter of fact, the exact opposite is the case, for the mild temperature of Spring is later in reaching these elevated regions; hence it comes about that in these colder regions those trees survive best which have adapted their season's work to commence a few weeks later and finish a few weeks earlier than the normal period.

PURELY PROTECTIVE MEASURE

We may reasonably assume that the "fall of leaf" is chiefly a protective measure adopted by the plant against transpiration at times when it would be injurious to its economy and that it is brought about by either heat or cold. At the first indication in late Summer of a lowering temperature some peculiar layers of cells begin to form at the base of the leaf stalks and quickly extend across the tissues, disconnecting them. *New York Sun*

Flowers have an expression of countenance as much as men or animals. Some seem to smile; some have a sad expression; some are pensive and diffident; others again are plain, honest, upright, like the broad-faced sunflower, and the hollyhock. *Henry Ward Beecher.*

Work for the Month in the Garden

SAMUEL GOLDING

WE have now crossed the threshold of a new year, and the thoughts of garden lovers go forward in anticipation to the joys and pleasures of achievement during the coming season. The history of horticulture during recent years has been remarkable for the improvements made in many types of flowers and vegetables, and the ever increasing interest displayed by the general public towards home gardening, to which fact the various societies and garden clubs that are being formed throughout the country, bear eloquent testimony. They are conducive to that which is good in the advancement of horticulture; their exhibitions not only promote a wider knowledge of flowers and plants, but are also the "happy hunting ground" for the amateur and professional who is ever seeking for that which marks an improvement.

The pleasures of gardening are not confined to a fleeting month or two but extend throughout the year, even when our gardens are wrapped in sleep. A retrospective view of the year's efforts and an examination of notes taken at the various shows will now be in order. At this time the really successful grower will be forming plans for the coming season's campaign. Notes written last year for future reference will be of the utmost importance and will remind us forcibly of any failures of crops, or of any particular vegetables which proved their worth; of varieties of flowers whose colors may not have been of the desired shades, or of others that deserve to be grown increasingly; of other out-standing features noted so as to gain advantage of past experience and apply it during the following season.

The note book does so much also to simplify the work on the seed order which must now be attended to. Some varieties of vegetables previously grown may not have found favor with the person in charge of the culinary department. Take for instance, the case of a grower sowing seeds of red, yellow, and white onions, when White Globe alone are appreciated. This is a common occurrence, and if a record is kept, it can sometimes be eliminated and the value of the crops increased.

It is an excellent plan to make out a complete list of seeds, plants, fertilizers, tools, spraying materials, and any other supplies which may be needed, and to order them early so that they will be on hand when actually required. Delays often cause disappointments, especially so if the stock of some particular variety we have decided upon, is short and quickly sold out.

The beginner will be well advised to commence with those varieties which are known to thrive in his locality. As for novelties, it is right to try them, but not to bank on them. Older and well tried standard varieties can generally be relied upon. Procure your seed from a reputable seedsman; the initial out-lay may be a trifle more but the high germinating quality more than compensates, for they can be sown sparingly with greater confidence as to the final results.

The stock of vegetables and fruit will need attention, and all specimens showing signs of decay should be removed. Many have to store their crops in cellars where there is the heat of a furnace to contend with, if the space is limited. This causes a too dry atmosphere, which should be avoided. Care in such cases should

be exercised and stocks of dahlias and other bulbs should have frequent inspections to prevent shrivelling and consequent loss of vitality.

Should we have a spell of mild weather, it would make it possible to remove the covering and expose the tops of celery, which is wintering outside. This will allow the moisture to evaporate, but celery must be protected at night in case of a sudden fall of temperature.

Continue to bring in a succession of rhubarb, seakale, chicory, and asparagus for forcing. They should be kept in a cool place, and will then respond quickly when brought into heat. Seakale and chicory must be grown where the light is excluded to be blanched perfectly. Care and attention will be needed regarding the watering that a moist, growing atmosphere may be maintained.

Mushroom beds that show that their vitality is becoming impaired, may be watered with tepid water in which a handful of common salt has been dissolved. This often has an invigorating effect upon the beds. Use a fine rose can when watering the beds. We can now continue to gather material for new beds, which is an easy matter when there is an abundance of horse-droppings. Collect enough at one time to make beds of the desired dimensions, which should be turned over daily to sweeten the mass thoroughly. This can only be accomplished when the violent heat has subsided and the strong traces of ammonia have disappeared. Take care to beat the beds down firmly, and after a few days, they will be ready for spawning. The next step is to cover the beds with some good loam, pressing it down with the back of a spade. Mushrooms can be looked for about six weeks later.

Apply winter spray to fruit trees as advised in last month's calendar, and push on with the pruning of the orchard when the weather permits. Evergreens and the flowering shrubs suffer from the ravages of scale and other pests, if they are not carefully examined and sprayed. Be careful to shake snow from over-weighted conifers and evergreens during heavy falls.

FEBRUARY.

The growing of early vegetables under glass demands attention although the early days of February may be regarded as almost too soon for the person who has not the facility that the greenhouse affords. But the lengthening days with increasing sunshine serve to remind us that the growing season is once more rapidly approaching. Therefore we should make all preparations to meet the near demands. Where only pits and frames are available for early work, the preparation of materials for hot beds is the first to occupy our time. This can be done as soon as possible. Collect plenty of fresh, strawy, stable manure and mix it with the same proportion of forest leaves, oak or beech leaves preferred, owing to their lasting qualities. This mixture should be turned over thoroughly to ensure a steady heat. It is, of course, important that the material be in proper condition when used, which can be determined during the time of turning or mixing. If the manure has been allowed to ferment violently before being used for the hot-bed, it is not as good as if it were fresh from the stable. Apply water

(Continued on page 23)

The Greenhouse, Month to Month

W. R. FOWKES

JANUARY and early February is a very interesting period in greenhouse work. Winter's chilly hand has seized all outdoor subjects, but the colors of the indoor blooms are intensified. Hard firing is in progress, bringing in its wake red spider. We must combat this pest, and not allow too arid an atmosphere in any part.

The rose house should be dampened down if the floors are of cement. Take care that water permeates the entire bench of roots where the heating pipes are under the benches, or the plants will suffer severely. Try and keep the rose house at an even temperature of 60 degrees at night, or a lot of foliage will be lost. Day temperature can be regulated more than the night, and the sun's rays will be more frequent and powerful now than in the last eight weeks. If kept too cool now, your crops will be short, for the wood will harden and go to sleep. Do not topdress, but give a fair sprinkling of bone meal now. It will carry the plants along their Winter's journey without anything else.

Carnation cuttings should be inserted in the sand and will strike now far better than two months later. Remember the kind of cuttings to make. The nearer the flower you take them from, the more prolific crop of flowers you will cut next Winter. It is likewise important to avoid the usual method of trimming tops of the cuttings. Many cases of stem rot have their beginning through the bruising which is caused by this method. Every one should grow the dark pink carnation, Hope Henshaw. It is the most prolific bloomer I have ever grown. The stem and blooms are of wonderful size, and the blooms are never off color.

The early peaches in pots should be brought into a cool house. Spray well to counteract scale. Keep the temperature for the first week as near 38 degrees as possible, and as the buds swell, increase, but never allow higher than 48 degrees until the fruiting period is at hand.

Lilacs for Easter should be started. See that scale is not introduced by bringing these plants indoors. Scale is the best eradicator of this pest.

Among our friends the orchids, *Cattleya Percivaliana* and *Trianae* are the first to herald in the New Year. They come at the period when orchid blooms demand the highest price. The late Fall weather with its unusual warmth and sunlight has benefitted these plants, and where the shading was taken off carefully from time to time, we find the result in most plants is that they are sending forth a good supply of fine blooms. *Cattleya Mendelii* which blossomed in May, made quick and successful growth, and with us is giving its second crop of blooms. If any of these plants need repotting, they should be attended to now. Clean pots and make a compost of osmunda fibre 3 parts, 1 part sphagnum moss and plenty of crocks for drainage.

If your orchid house is low, you will need a little shade on the sunny side, or your new growths will be ruined. There are a lot of orchids in bloom and at various stages of growth at this time, and it is not unusual in the United States to cut two crops of blooms per annum. Unlike European culture, with restricted sunlight, orchids here, excepting deciduous calanthes and dendrobiums, are practically never at rest. Rest here in this sunny clime is rare, and the person who declines against certain

methods and wants special houses in which to grow orchids is not in sympathy with their natural desires. The skill of the cultivator has more to do with successful culture of orchids than any kind of greenhouse erected.

Ferns should be divided in early February. They then have their period of new growth and can be divided into as many sizes as one requires. Compost is not very important, but drainage is most important. The *Farleyense* tribe favor heavy rose soil and red sandstone incorporated. The usual *Nephrolepis* and *Adiantum* will grow taller if desired, in light soil containing leaf mold.

Repot *Schizanthus* when necessary and sow a little now of Badger's hybrids. When in the flowering size, five or six inches, be careful not to over water.

Bring *Spiraea* along gently on a light bench in a cool greenhouse. See that your gardenias are free from mealy bug; also that they have free drainage or the result will be sickly foliage which some people wrongly believe is due to their being grown inland, claiming that this class of plants only thrives on the sea coast.

Crotons should be tongued. Take any bushy plant and cut off the lower leaves on a healthy shoot; make an upper slanting cut and half way through put a tooth pick or smaller piece of wood to keep incision open, and insert a little moss and sand previously chopped up fine and moistened, and secure with raffia. Keep in a warm corner gently sprayed away from draughts, and in six weeks you will have a nice lot of young plants for 2-inch pots. Successful croton culture consists of slight shifts. Never give more than a half inch shift in repotting and this should be done very firmly. You can build up plants fully six feet in one year from early struck plants.

Chrysanthemums of the large type should be put in the sand in February. The pompoms and others will be early enough for pot use if struck the end of March. The propagation is simple. They will strike readily in twenty days time if the sand is 60 degrees and the house between 50 and 60 degrees.

Pinch back any poinsettias left from Christmas time and you will develop a nice growth that will bloom well at Easter.

Sprinkle a little tobacco dust around the roots of cauliflower plants to kill the maggots that infest these occasionally.

Do not waste valuable space in your houses propagating roses from cuttings. Order grafted stock from the special rose men who advertise in the GARDENERS' CHRONICLE, and who will deliver them when they are desired next Summer. The coddling which one's own rose roots demands; the wearisome waiting for a crop of blooms; the continual dropping of yellow leaves if your atmosphere and soil, etc. is not just so, combined with poor substance of petal, just takes the joy out of indoor rose growing. The grafted plants have a vigorous start which they maintain, and you can commence to cut very nice blooms eight weeks after planting. They will continue doing so with a little manipulating of the buds. On your present crop take away two buds off every plant each week, buds just showing color, and you will never be without roses, but be sure to secure grafted plants next year.

Cuttings of lantanas and Bouvardias should be inserted, but use very slender growths and be careful to keep shaded from sunlight.

Cut all flowers rather earlier in the day than you did a few weeks ago. There is plenty of ice to be had now for the ice box and if you have a cool cellar you will not require ice. But avoid gas from the furnace. A too frequent cause of carnations going to sleep after being cut is from coal gas. Orchids are very easily injured by it also.

Do not be in too great a hurry to force tulips. They detest heat, and the antirrhinums you grow with their long stems are more suitable than stunted tulips. They will come along all right later.

Give the freesias a little Clay's fertilizer. Cinerarias and cyclamen will appreciate a little also now that the soil is getting exhausted. It is not how much feeding plants will stand as amateurs frequently ask, but when the plant requires it, that helps in successful culture. There is not a plant grown that will not benefit by judicious feeding.

Soot water once a week for the palms is now appreciated. The palms that were not repotted will develop fine foliage if given a dose of Dried Blood, a tablespoonful to a 10-inch pot. Be careful when watering not to wash it away carelessly. Between several batches of palms repotted a year ago and a batch fed in the manner described, I can see no difference, and time and labor is saved in not repotting.

Keep all foliage plants in as small pots as possible. They will take more water and fertilizer and be more convenient to handle.

WORK FOR THE MONTH IN THE GARDEN

(Continued from page 21)

from the hose if it appears too dry, and moisten it throughout. When it is fermenting evenly, make the bed, the depths of which must be determined by the conditions under which the particular crops must be grown. It can usually be regarded as false economy to adopt a sparing policy with the hot-bed. When filling the frame, bring it up as near the glass as possible and tread firmly, so that when it has sunk to the full extent the plants or seedlings will be located where they can enjoy to the fullest extent the sunshine and air, which they require for perfect health. If it is intended to grow only seedlings in the hot-bed, use a much smaller percentage of leaves; the heat is stronger. Cover with a good compost to a depth of four to six inches, according to the plants raised. When the heat has subsided to a uniform steadiness, sow such crops as early carrots, beets, radishes, and lettuce.

Give air whenever possible to plants wintering in cold frames, or they may, during mild spells, start into premature growth. Keep the plants free from decayed foliage and water very carefully.

MICHAELMAS DAISIES

(Continued from page 11)

The *cordifolius* type is worth growing, if only for cutting. Its small flowers on long, graceful sprays are adapted for vase work. "Sweetheart" is recognized as being one of the best.

The Michaelmas Daisy because of its varied height and color can be planted to advantage in many ways. It is ideal for growing between Spring flowering shrubs for it soon fills up any gap caused by pruning the latter and

with Summer and Autumn flowering shrubs, keeps that part of the garden bright until frost comes. Planted in large beds with *helianthus* "Miss Mellish" or *Tomcotosus*, present a very good effect. Another effective combination is obtained by planting Michaelmas Daisies with the *Boltonia*, mixing the pink and blue shades with *B. asteroides*, and white flowering varieties with *B. latissima*. (*Boltonia* vary in height from nearly four to seven feet.)

This flower also shows up to advantage in front of a wall or trellis covered with English Ivy, Honeysuckle *Halliana*, or *Pyracantha Lelandi*. Planted in a wide border with a tall hedge of Holly or Yew at the back, as is so often done in England, the Michaelmas Daisy seldom fails to produce a most striking and artistic effect.

In nearly every cottage garden in England, can be seen the Michaelmas Daisy—hardy aster—and at the Autumn shows special classes both for the amateur and professional are arranged for this flower. Each year new and improved varieties are eagerly sought for and as long as that progressive spirit is retained in horticulture, there will always be flowers worth while and amongst them, the Michaelmas Daisy.

GARDEN PESTS AND REMEDIES

WEEDS decrease our crop yields to such an enormous extent, they interfere so seriously with our farming operations, and they cause such tremendous losses in dollars, that concerted effort should be directed to their reduction and eradication. Any community, large or small, that sets itself the task of practically eliminating its weeds and adopts and sticks to a program of action, can work wonders. It is quite certain that everyone knows what a "weed" is. Probably no one of us has had the term defined but our conception of its meaning is very clear. It may be that at one time in our early days we were told to pull the weeds in the corn field or garden; to mow the weeds along the fence; and at such a time it is certain that no words of explanation were needed to indicate which the weeds were. We have come to consider as "weeds" those plants which tend to grow where they are not desired; plants which tend to resist man's efforts to subdue them; plants which resist frost, heat, dryness; which will grow in almost any kind of soil and under all conditions; plants which produce seeds in enormous numbers and have other rapid methods of propagation; plants in themselves sometimes truly beautiful, but that have for us lost their charm; plants useless and troublesome. Emerson said of a weed: "A plant whose virtues have not yet been discovered."

A large Purslane plant will produce 1,250,000 seeds; a single Russian Thistle plant will ripen 100,000 to 200,000 seeds; Tumbling Mustard, 1,500,000; Shepherd's Purse, 50,000.

The seeds of many weeds are very small and escape notice. A pound of Clover Dodder has 1,841,360 seeds; Common Plantain, 1,814,360 seeds; Lamb's Quarters, 604,786 seeds; Russian Thistle, 266,817 seeds; Wild Mustard, 215,995 seeds; Wild Oats, 25,493 seeds. If 60 pounds of Wheat are planted to the acre, and this Wheat has 2 per cent of Wild Mustard seed, there will be distributed over that acre 388,791 Mustard seeds.

Not only do weeds produce seeds in tremendous numbers, but seeds with an ability to live a long time. The seeds of some weeds, when buried in the soil, may retain their power to germinate for 15 to 30 years. Such is true of the seeds of Tall Pigweed, Black Mustard, Shepherd's Purse, Dock, Yellow Foxtail, Chickweed and others.—*Garden Club of America Bulletin*.

Training Young Men in the Gardening Profession

WILLIAM GRAY

CONSTRUCTIVE criticism is beneficial, for it is in this way all real progress takes place in the world. When we discuss the need of a school for training young gardeners, we are criticising existing methods of training, for if these were satisfactory there would be no need to discuss other plans of training.

Therefore, if the criticism from practical gardeners is of such an extent as to be erroneously called "everlasting knocking of our colleges," there must be some reason for the criticism, and if such criticism is constructive it should be given consideration. Criticism of the college graduate reflects upon the college and its system of education, and going to the root of the matter we are led to believe that the reason for such criticism is the big dose of theory and the small dose of practice that is given the young men at our Agricultural Colleges. Let us define practical and theoretical, and see which is of the most importance.

Practical—capable of applying knowledge or theory to practice.

Theoretical—depending on theory, not practical, speculative.

Practice—dexterity acquired by habit, exercise of a profession. Accepted or proven theory is based upon the best known methods of practice, and therefore is not speculative. The speculative quantity is the theoretical trained man who has yet to prove that he is capable of applying knowledge or theory to practice.

A young man with a fairly good education can become a thoroughly trained gardener by practice alone, but this can not be possible by theoretical study alone. We can therefore assume that practice is of far greater importance than theory, yet there is no doubt that the two combined would turn out more proficient men, and if the importance of practice is greater, the young man should receive more practice than theory.

Our Agricultural Colleges have made progress in remedying this defect in their education, still there is great need for more practical training. The criticism of the practical trained gardeners is directed at the assumption on the part of the college graduate to consider himself competent to fill the executive position of superintendent or head gardener on leaving college, whereas, owing to the lack of much practical training, he is in no position to direct others or to know whether they are doing a thing right or wrong.

That the majority of Agricultural College graduates have been unable to hold such positions for any length of time proves that the criticism is just. A bond of sympathy could be established between the college and the practical man by the faculty impressing upon the young men the importance of rounding out their education by serving for a few years in subordinate positions under thoroughly practical gardeners.

It is open to question whether or not horticulture should be taught in an Agricultural College along with agriculture. Both subjects are of such a broad nature that it would be almost an impossibility to provide the facilities for practical training for both in one institution, and the fact that Agriculture is of more economic importance would tend to the favoring of that science.

Let us consider therefore a proposition to establish a School of Horticulture, the object being to train young

men for all the opportunities that Horticulture presents, *i. e.*, landscape gardeners, private gardeners, market gardeners, fruit growers, florists, nurserymen, foresters, etc. From the foregoing we will assume that practice and theory are going to work hand in hand to get the most efficient results. The school buildings would be of the usual type, presided over by a head professor and his assistants. Young men would be eligible to enter the school at an early age, a high school education not being required for the students would be educated at the school in all subjects that would be helpful to them in their profession and such subjects would be taught only from the standpoint of their relation to horticulture. The grounds around the buildings would be of ample size to afford every facility for the application of the principles of horticulture. A superintendent thoroughly practical would be in charge of the outside departments and under him at the head of each department there should be a practical gardener, expert in the work of the department.

A general plan of development would be mapped out, the different departments being arranged as follows: Landscape Department, consisting of the grounds proper laid out in lawns, drives, walks, flower gardens and borders, planted with trees, shrubbery, and foliage and flowering plants; Vegetable Garden Department, a plot of some extent for the culture of vegetables; Orchard Department, several acres of ground devoted to fruit; Nursery Department, several acres of ground with propagating house and frames for the cultivation of trees, shrubs, and hardy plants; Greenhouse Department, a range of houses for the cultivation of plants, flowers, fruit and vegetables under glass, and plants for the grounds and vegetable garden.

All work pertaining to horticulture would be done by the students under the guidance of the expert head gardener in each department. Lectures by the professors and cultural talks by the superintendent could be delivered wherever the students were at work, the subjects of the lectures and talks correlating with the work at which they were engaged. Thus on pleasant days during Summer the class room study period would be short and more time given to it in Winter or during inclement weather, when outside work would be at a minimum.

The full course would occupy four years. The first two years would be the critical period in the school, for many of the young men would undoubtedly be without experience, but as they became more proficient and had reached their third and fourth year of training many of them could be put in positions of more or less responsibility in the different departments.

The expense of such a proposition would be considerable, but need not present unsurmountable difficulties. The school could be started on a modest plan; the development extending over several years providing students practice in its development. All horticultural interests in the country could get behind such a plan. The grounds could be stocked to a great extent through horticultural organizations. Owners of private estates could be interested in it. Government support might be secured as the economic value to the country of sending out trained men of this kind was recognized.

All this is theory. Is it practicable?

Departments of Foreign Exchange and Book Reviews

EARLY BULB FORCING

OF the many details leading to success in the matter of early bulb-forcing, a timely start and suitable varieties are essential. Early planting is necessary to ensure a healthy root system which will enable the plant to bear the strain presently to be placed upon it, and without which, failure, wholly, or in part, of the crop might be foredoomed from the start. For this there is no substitute; no rushing in at the last moment in the hope of making up for lost time. The bulbous plants I have in mind are Roman Hyacinths, Daffodils and Tulips. Of these three, those last named are invariably the most sparsely rooted, and in their case it may, in a measure, be true to say that other things—*e. g.*, bottom heat and darkness—play an equal part so far as ultimate success is concerned. The root system of the bulbs of the other genera named are stronger and more abundantly produced, that of the Daffodils in particular, and in their case, that of healthy bulbs very considerable. In this connection, root production in these plants, grown, when taken indoors, under entirely foreign conditions, has an important bearing upon the water supply, hence, to the gardener, the information should be appreciated. Of the bulbous rooted subjects under consideration, the Tulip requires the least root-moisture; the other two—Hyacinths and Daffodils—in reason, can hardly be given too much. This, I state with emphasis, having seen the Daffodil ruined in its thousands for lack of moisture alone, or through drought in the soil and an arid atmosphere combined. Under the greenhouse stage in proximity to the hot-water pipes, is no place for this crop, yet I have seen bulbs there, and neglected in the matter of watering for weeks on end. To introduce the plants from the plunging beds out-of-doors to such conditions is ruinous; rushing the plants into considerable warmth from the open is also another common cause of failure with the Daffodil. This, together with growing the plants for ten days over strong bottom heat and withholding water for a like period, are among the ruinous and unpractical methods that I know have been resorted to by some commercial growers in a rather large way of business.

DAFFODILS.

Of the three genera named, the Daffodil is the most impatient of strong heat at the start; a season of preparation—fourteen days or so—of comparative coolness, with moisture, is far better. Heat, indeed, too early applied, not infrequently has a retarding effect upon the crop, apart from which, later, there is an absence of uniform growth and flowering. Hence, from the economic standpoint, seeing the high price of fuel, much might be advanced in favor of the cooler, progressive, and more rational treatment of forcing.

In certain instances, when the forcing of such bulbs was in its infancy and all had to be learnt in connection therewith, some experimenting was necessary. This revealed the absolute stubbornness of certain early and cheap sorts of bulbs, and how they refused to budge when placed in artificial heat. How, too, after two months or so of forcing, when turned outside in disgust in wintry weather to take care of themselves, they flowered at their natural time as though nothing had happened. The value of these experiments lay in finding which were the more responsive ones to forcing and which to-day, so far as I am aware, are still unsurpassed for early work. From the many specimens examined of both Hyacinths and Narcissi, the lack of responsiveness appeared to be no fault of the flower; it was obviously due to the fact that the expansion of the orifice of the neck of the bulbs did not synchronize with the growth elsewhere, with the result that a kind of strangulation was set up; in some instances, the scape was detached from its basal seat with, of course, disastrous results. Cause and effect being clear the lesson was of untold value.

With the season of preparation ended, the house may be closed and a temperature of 45 degrees or 50 degrees maintained. Provided that both fogs and frosts are absent, this may be increased to 55 degrees or so after a space of three weeks. With such deterrents to progress as fog and frost, a lower temperature should be maintained; to do otherwise, would be extreme folly and a useless expenditure of fuel. From now, onwards, there should be no stint of root moisture for all Daffodils. A moist atmosphere up to the time of the opening of the flowers is also important. Given these conditions, the cultivator has at his disposal the essentials to a successful issue. For earliest work *Narcissus obvallaris* (the Tenby Daffodil), *N. Henry Irving*, *N. spurium*, and the old double-yellow Daffodil (*N. telamonius plenus*) are still unsurpassed, their flowering being much in the order given where all are grown under identical conditions. Closely following these in

blooming are *N. princeps*, *N. Golden Spur*, *N. Victoria* and *N. Excelsior*, which may be regarded as a richer colored Golden Spur. *N. Ard Righ* and Countess of Annesley (Irish Daffodils) have both been put forward as first early-forcing sorts from time to time, and it may be true of the first-named, if the bulbs are Irish grown and forced, not otherwise. Those first named are the chief source of supply for the late December and January market; of the others, *N. princeps* is usually the first. Rather than over-force the second earlies, it is better to have a successional batch of the first. Length of stem is thereby secured; a not unimportant asset in these as in other flowers grown for market. What effect the heat of this Summer and early maturing will have upon the forcing of these flowers will be interesting to watch. Thus, it will be seen that but the merest handful of the great and ever-increasing host of *Narcissi* may be regarded as reliable forcing sorts. Potted or boxed in September, their introduction into the cold house during the early days of November might follow, treating them as already advised. *N. paticus ornatus* is something apart, and late November will be soon enough to bring this occasionally unamiable variety indoors. Pursue an even medium course with it till the flower scapes are well in view. It were better to have a full crop by these means than an earlier one with many distorted flowers possessing no market value. Four-inch-deep wooden boxes of uniform size are the best receptacles for the bulbs and occupy the space in the forcing house to a far greater advantage than pots.

HYACINTHS AND TULIPS.

Hyacinths and Tulips require both bottom heat and darkness to force them well, differing in these important particulars from the Daffodils. Length of stem and a refined appearance are promoted thereby, assets of no inconsiderable market value. The earliest batches are best grown in a frame within the house; the bottom heat, always under control, being supplied from beneath the bed, consisting of moist cocoanut fiber with a covering, three inches in thickness over all, of the same material. For Roman Hyacinths and Van Thol Tulips, the depth named is ample. For Tulips of naturally taller growth, a depth of six inches would not be too much. By insuring a uniform heat about the tops of the plants, the good results already noted—stem, length, etc.—follow. By covering the frame with damped sacks or mats, heat is conserved and protection against fogs ensured. Here, it may be noted, that Tulips so grown are most sensitive to fog, hence the cultivator should see that the crop is not removed from the bed and darkness until the stems have attained their maximum and the flower buds fully developed. From experience I am assured that the apparently stunted, green tipped, half-developed flower buds of white-flowered sorts too often seen are a direct result of too early removal from the congenial conditions above noted. Its immediate effect upon the crop is a cessation of all growth, hence, the ills named. Usually it is done with the laudable desire of introducing a second batch, though the keen observer will rarely repeat it. The most ludicrous thing in Tulip forcing I ever saw was the early introduction from frames and plunging beds in the open to the greenhouse stages, where they were fully exposed. It concerned some hundreds of pots of the best bedding sorts. With nothing to promote stem growth, the flowers presently expanded on two-inch or three-inch high stems and, sprawling over the pots, presented a strange sight indeed. A bottom heat of 65 degrees at the commencement may be increased to 75 degrees or 80 degrees, in the course of three weeks; the latter warmth will be ample for ordinary purposes. All bulbs forced in frames must be well watered at the start and given time to become dry before covering them with the fiber. The material below the pots should also be well damped. Subsequently, tepid water only should be applied to the plants. Damp the frame daily by spraying with the syringe. The introduction of the Hyacinth and Van Thol Tulips into the heated frames will depend upon demand, though early November usually suffices. For other Tulips, any time during that month or, say, from the middle onwards is suitable. The best Tulips for early forcing are *La Reine*, *Yellow Prince*, *White Hawk* and *King of Yellows*. The first named is probably forced by the million annually, a pure white sort that has also the merit of cheapness. Intelligently forced, this variety and *Yellow Prince* may be had at Christmas with fair weather, and with foot-long stems. The cultivator would be well advised to grow several successional batches of these two varieties.—*The Gardiner's Chronicle* (British).

COLOR ARRANGEMENT IN THE GARDEN

IN the early thirties, when I first turned my attention to gardening, the only serious consideration given to color schemes was that devoted to the planning of Summer beds. But the remembrance of vivid contrasts produced by masses of red Geraniums and blue Lobelias serves to indicate that the art of color arrangement was not in an advanced state. We may therefore regard the science of color planning as practically non-existent in those days. One certainly saw many pleasing color combinations in the perennial border and shrubbery, but these were more the result of accident than forethought. Nowadays the conception of happy harmonies or striking contrasts in the herbaceous border—and, indeed, in any portion of the garden—is regarded as principal rather than secondary considerations. The wise gardener of to-day selects with the utmost care such plants as will most fittingly associate with the natural surroundings. This careful planning of color effects is, of course, the keynote of successful garden building. The guiding factors in the creation of pleasing color combinations are naturally the colors of the flowers and the period of their display. Nobody would attempt to form color schemes without accurate knowledge of these characteristics. To some people the gift of blending colors seems to be a natural one. To others the taste is an acquired one. In either case there are a few guiding principles which might with advantage be borne in mind by those who contemplate laying out new gardens.

Broadly speaking, there are two methods of forming color pictures—namely, by harmonies or by contrasts. There are times when either may be successfully employed; on the other hand, harmony may be the only permissible arrangement. Flower-borders which are always more often seen at close range should, as a general rule, be treated with harmony, while distant effects may with safety be made by striking contrasts. For the most part, I am of the opinion that harmonious effects are more pleasing to the eye. They are certainly more restful. It is quite true that contrasts have a value of their own. They are useful in certain cases in enhancing the color value of many flowers. For instance, the juxtaposition of purple Michaelmas Daisies and Red Hot Pokers seems to compel special admiration, while emphasizing the rich coloration of each species. But a garden is, after all, a place of rest for most of us, and how can restful peace be more felt than in a garden which is filled with the soothing influence of quietly-blended colors.

Whatever scheme be adopted, there should be a sufficient mass of each color to get the true value. The old plan of putting plants about singly is quite inadequate in the formation of color pictures. Bold groups of each subject yield an all-compelling beauty which is not easily attained in borders made up of inconspicuous color patches. There is no doubt that the feeling of rest which seems to pervade many gardens is far more due to the harmonious coloration than to any other influence. The value of color in house decoration obtains increasing recognition. Few people nowadays select their wall-papers without the most careful regard to the aspect of the room, the furniture and carpetings, and the use to which the room is to be put. Why not extend the same thoughtful observance of color value to our gardens? The best teacher we can have in the matter of color effects is Nature. We have only to look around us to find everyday lessons from which first-hand information may be obtained. The grey clouds floating across an azure sky suggest at once a happy combination of grey-foliaged plants with blue Delphiniums or Anchusas. Again, the blending of colors on the wings of certain butterflies or on the feathers of the peacock are quite suggestive of what may be done in the way of flower association. There are, indeed, hosts of examples which may be seen in the country-side and aptly repeated on a smaller scale in the garden. *Gardening Illustrated.*

THE USE AND ABUSE OF GARDEN ORNAMENT

THERE is certainly this advantage in a pergola made of natural tree trunks and boughs that it will not clash with any style of building near it, and it can always be well strengthened by almost invisible metal supports. It must be remembered also that a pergola cannot begin anywhere and end nowhere in particular, but should be made for a purpose, such as to form a shady approach to the main garden from the dwelling house or the approach to the conservatory.

It is difficult to understand why roses and delicate climbers should be given supports heavy enough to carry a Pullman train and why gardens should have been disfigured by the erection of structures resembling an overhead railway. It is quite time that a protest should be made against the vogue for needlessly heavy and clumsy pergolas, which posterity will smile at.

What has been said about the position of the pergola applies also to other ornaments. The author would a reminder that these delightful ornaments cannot fitly be placed just anywhere. However much some may dislike the formal garden, such an artificial creation as a fountain seems to demand formal surroundings,

unless perhaps it be a mere jet of water rising from the surface of an informal rocky pool. Yet this is, I think, not free from objection.

Garden statues, again, when exhibited are frequently admired and it is fortunate, perhaps, that their price prevents more finding their way into small suburban gardens. Greek and Roman statuary are quite out of place, unless the mansion and garden surrounding are in the classical style.

Lastly, one too often sees white wood seats placed where their brilliance and luster strive to outshine the white flowers near them, and they become the most prominent feature in the whole garden. The beauty of a stone seat is, that if left to itself, it will soon tone down and merge into the garden picture. It will become a beautiful part of it, if the design has been well chosen, but it will not dominate it.

It is a safe rule to follow, to allow plants and flowers to provide the chief notes of form and color in our gardens and not rely on brightly painted seats and colored awnings unless we are dealing with a garden planned and planted on Japanese lines.—*South African Gardening and Country Life.*

DEPARTMENT OF BOOK REVIEWS

THE MARKET REVIEW NURSERY WORK SERIES, by F. J. Fletcher, F. R. H. S. Benn Brothers, Ltd., London, England.

The name of the publishers, who have brought out a splendid lot of books for gardeners and nurserymen, including some Englishmen's works most highly prized by Americans, is itself a guarantee of the good quality of this series of six very nicely made booklets. The first and the second volumes which have come to hand, are an earnest of worthy treatment to be looked forward to with eagerness. The limited size, for Volume I consists of only 75 pages and Volume II of a few less, bans all expectation of exhaustive completeness; but there is virtue in the clear and painstaking presentation of all fundamental principles which a book making claim to exhaustiveness of topics is too apt to overlook, or to assume as known. Not many genera of plants are treated in Volume I, which is entitled *Glasshouses and the Propagation of Plants*; but the methods found in England to be most successful in the management of greenhouses are detailed clearly; so too the handling of seedlings and cuttings. And it is certainly better to give an exhaustive treatment of a few plants, as is done very satisfactorily, than to attempt to condense the treatment of practically all plants grown commercially under glass; with the methods once mastered the peculiar points of difference in the production of certain plants can readily be ascertained from common printed sources and even by a little experimentation.

Volume II is of the same general character and quality as the preceding. Under the title *Special Glasshouse Crops*, it handles specifically, Tomatoes, Cucumbers, Melons, Grapes, Sweet Peas, Forcing Bulbs, Lifted Chrysanthemums and Catch Crops and their Economic Value. The final chapter of the book, which is given up to the subject named last in the preceding list, is particularly valuable for its suggestions of how to make the most of whatever space is available. But in the reading of this, as is of course the case with foreign books in general, allowances must be made for differences of climate and national customs and preferences.

COUNTRY LIFE BOOKLETS. Country Life, Ltd., London, and Charles Scribner's Sons, New York.

The publishers of this series, whose periodical is *The Gardeners' Chronicle* of London, are in a position to know the leading authorities and successfully to solicit their co-operation. Of the three volumes examined the one, *Sweet Peas*, is the work of Horace J. Wright, F. R. H. S., First Honorary Secretary of the National Sweet Pea Society; a second *Violas and Pansies*, has been made by Howard H. Crane, F. L. S., author of *The Book of the Pansy, Viola and Violet*, while the third, *Antirrhinums and Pentstemons*, has been written by A. J. MacSelf, one of the directors of the Chalk Hill Nurseries, in which the two plants are specialties. The titles of other booklets, selected from the list of three dozen or more, are *Storing Vegetables and Fruits*, *See Keping*, *Winter Egg Production*, *Home Decorating*, *The Dog*, *Billiards*, *How to Know the Birds*, *How to Prune Roses and Fruit Trees*, *The Greenhouse*, *Pot Plants*. These and the other subjects, confined each one to the average of 30 pages composing one of the little and very inexpensive paper-covered volumes, have been dealt with eminently well, if conjecture may be made from a reading of the three specimens. The entire series ought, unquestionably, to be given a place in the library of every country residence and some of the booklets would be of more real serviceability in the management of a city garden than many other books of greater cost.

National Association of Gardeners

Office: 286 FIFTH AVE., NEW YORK

President—Robert Cameron, Ipswich, Mass.
Vice-President—John Barnet, Sewickley, Pa.
Secretary—M. C. Ebel, 286 Fifth Ave., New York.
Treasurer—Montague Free, Brooklyn, N. Y.
TRUSTEES (For 1921) William H. Waite, Arthur Smith, D. L. Mackintosh, New Jersey; W. N. Craig, Massachusetts; H. E. Downer, New York.
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New York—Mrs. J. J. Albright, George F. Baker, Edwin S. Bayer, Albert Clayburgh, W. R. Coe, Mrs. F. A. Constable, Paul D. Cravath, Mrs. W. Bayard Cutting, Mrs. Charles Daniels, Cleveland H. Dodge, Mrs. David Dows, Frank J. Dupignac, Mrs. Coleman du Font, Childs Frick, W. H. Gratwick, Daniel Guggenheim, Mrs. W. D. Guthrie, Mrs. William P. Hamilton, Mrs. John Henry Hammond, T. A. Havemeyer, Mrs. L. A. Herman, Anton G. Hodenpyl, B. H. Howell, C. O. Iselin, Otto H. Kahn, Mrs. Frank B. Keech, W. Eugene Kimball, L. C. Ledyard, Jr., Adolph Lewisohn, John Magee, Mrs. Julius McVicker, Morton H. Meinhard, Mrs. Eugene Meyer, Jr., J. Pierpont Morgan, Mrs. J. Pierpont Morgan, Stanley G. Mortimer, Mrs. Harold I. Pratt, John T. Pratt, E. F. Price, Mrs. William A. Read, H. D. Roosen, Charles A. Sherman, Mrs. Samuel Sloan, Benjamin Stein, Mrs. W. Stursberg, Daniel Tatum, Mrs. R. M. Thompson, Mrs. Edwin Thorne, Mrs. Henry M. Tilford, Carl Tucker, Samuel Untermyer, Mrs. Harold T. White, Mrs. Payne Whitney, E. L. Young. **New Jersey**—A. Albright, Jr., Charles Bradley, Joseph P. Day, James B. Duke, Mrs. Lewis L. Dunham, Mrs. Frederick Frelinghuysen, Mrs. K. S. Gordrich, Mrs. Gustav E. Kissel, C. Lewis, Mrs. Paul Moore, Hubert T. Parson, Mrs. Manuel Rionda, P. S. Straus, Mrs. John I. Waterbury, Mrs. Ridley Watts, Sanders Wertheim. **Pennsylvania**—Samuel T. Bodine, Gen. Richard Coulter, Mrs. J. D. Lyon, R. B. Mellon, Gifford Finchot, George E. Tyler, Edward A. W. ... **Connecticut**—E. Dinan Bird, Dr. Tracy Farnam, Mrs. Tracy Farnam, George M. Hendee, Miss A. B. Jennings, H. F. Schwarz, W. H. Truesdale, William Ziegler, Jr. **Rhode Island**—Gov. R. Livingston Beekman. **Massachusetts**—Miss M. R. Case, Mrs. William C. Conant, Mrs. Henry C. Frick, Mrs. Louis Frothingham, Henry S. Hunnewell, A. K. Lawrie, Mrs. C. G. Rice, Prof. C. S. Sargent, Mrs. J. A. Spoor, Mrs. Bayard Thayer. **New Hampshire**—F. G. Welton. **Ohio**—F. F. Drury, H. S. Firestone, Mrs. Francis F. Prentiss, John L. Severance, H. S. Sherman, H. L. Thompson. **Michigan**—J. B. Schlottmann, E. D. Speck. **Indiana**—Theodore F. Thieme. **Illinois**—A. Watson Armour, Harry B. Glow, A. B. Dick, Clayton Mark, Mrs. Julius Rosenwald, Mrs. F. W. Upham. **Minnesota**—Mrs. Chester A. Congdon, F. H. Stoltze. **Iowa**—Mrs. G. B. Douglas. **Missouri**—August A. Busch, Dr. George T. Moore. **Virginia**—Miss Grace E. Arents. **W. Virginia**—Mrs. Arthur Lee. **Georgia**—E. H. Inman. **S. Carolina**—Robert S. Mcbane.

LOCAL BRANCHES

Newport, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.
St. Louis, Mo.: George H. Pring, chairman; Hugo M. Schafl, secretary.
Nassau County, L. I.: John T. Everitt, Glen Cove, chairman; John McCulloch, Oyster Bay, L. I., secretary.
Boston, Mass.: Robert Cameron, chairman.

THE PRESIDENT'S MESSAGE

As president of the National Association of Gardeners, I extend the most hearty wishes for a prosperous, successful and happy New Year to all officers, members, sustaining members, and to all lovers of plants and gardens throughout this great country.

The past year has been one of the most successful in the history of our organization. Indeed, we ought to feel grateful considering the condition of business throughout the country. Not only in this country, but throughout Europe, large estates have been changing owners and this has been the cause of many gardeners changing positions, consequently bringing hardships and difficulties to them. However, the outlook for the current year is much more satisfactory. I am surprised at this early date at the number of calls I have had for efficient and capable gardeners. Employers are very exacting and they only ask for thoroughly trained men. We must not forget the fact that many men in this country made large fortunes during the World War, and these men, in many instances, are procuring large estates and will need gardeners to develop their grounds and gardens. Many of these men are practically ignorant of gardening, consequently it is our duty in such cases to give our very best

assistance and encouragement to develop more gardens throughout the country.

Assistant gardeners are still in meagre supply and there is no prospect of getting many from Europe for some time to come. During this year a great effort will be put forth to evolve a scheme to encourage young men to take up gardening as a profession. In fact, there is now under consideration a plan, which, if carried out, will give better training and encouragement in gardening to young men than they have ever had in this country. The plan is now well under way and members and others interested will in a few weeks be given full details.

Our association is quite young and has many weak spots but with time, members and officers being interested, a great organization for the real benefit of all gardeners will be built up. I believe in local branches and hope to see many more of them throughout the country. At these conferences we can discuss subjects that the members are interested in and also subjects that can be taken up and discussed at the meetings of the annual convention. Members should never forget, when there is an opportunity presented, to say a good word for our association and explain its objects and always be alert for new members of the right kind.

There are many things which we, as true lovers of Nature and the beautiful, should keep constantly protesting against. The bill board nuisance should be protested against until this disgraceful habit is eliminated. The protection of our native plants ought to be of special interest to us. The finest shrub that we know of in the world, *Kalmia latifolia* will be extinct very soon if it is not protected. There are hundreds of other native plants that also need protection. Digging up our native plants by those who ought to know better, and exhibiting them at horticultural exhibitions is another thoughtless way of destroying our native flora. Exhibiting the flowers of our native plants is quite another thing.

I believe if we are to be progressive that the GARDENERS' CHRONICLE OF AMERICA should be a weekly magazine. A gardening paper that is issued only once a month does not and cannot keep up with the times. More space should be given to subjects that would be of interest to the young gardener. I like a fearless paper that will attack all kinds of wrong doing whether they are the doings of gardeners, seedmen or nurserymen. The owners and managers of our trade and garden magazines are so fond of the almighty dollar that they won't print anything that will injure their advertising. An advertiser can't be offended.

We hope that the convention of 1922 which is to be held in Boston in the early part of September will bring out the largest number of members that has attended any of our meetings. There are many points of interest to gardeners in and near Boston. The finest collection of horticultural books in the world is to be seen in the Massachusetts Horticultural Society's Library—the very oldest and the very newest books are to be seen there. Then there is in the Arnold Arboretum the most wonderful collection of hardy trees and shrubs in the world. There are also many old gardens and many modern ones, too, in this vicinity. There are the Concord and Lexington battle grounds where many of the English and Scotch gardeners' ancestors lost their lives by the shrewd strategy of the Yankee farmers. Harvard University has many unique attractions for the gardener, the Blaschka models of glass flowers; Robinson Hall, the finest school of landscape architecture, and its library and other equipment, in this country. Then in the near vicinity is the Longfellow House and garden; the Hunnewell estate at Wellesley where the finest collection of coniferous trees in this country can be seen. Near Boston are the famous Weld Gardens and the Faulkner Farm Gardens where the sculptors' art and the landscape gardeners' work can be seen at their best. To those who are Christian Scientists, the Mother Church which is one of the finest buildings in Boston, and its attractive grounds will be especially interesting. There are hundreds of historical and other interesting things which can only be seen in this vicinity. We are not like the Californians who always talk about the weather and orange groves. We have lots of weather but many other things too numerous to mention in this greeting. I conclude by wishing all gardeners good success with their crops and flowers during the year 1922, and I hope to greet you all in Boston next September.

ROBERT CAMERON.

PRESIDENT CAMERON'S APPOINTMENTS

President Cameron has appointed the following directors whose term expired on January 1st, to succeed themselves for a term of three years:

George Wilson, Illinois; John F. Huss, Connecticut; Carl N. Fohn, Colorado; James Stuart, New York; William Kleinheintz, Pennsylvania; Edwin Jenkins, Massachusetts; Joseph Tansey, New York; and George Stewart, Massachusetts, to succeed Robert Cameron, whose term expires January 1st, 1923; Alexander Michie, Long Island, to succeed Robert Williamson, deceased, whose term expires January 1st, 1923.

UNPROFESSIONAL ETIQUETTE

Complaints have come to the secretary's office recently of practices on the part of some thoughtless gardeners towards brother gardeners, which have caused loss to the latter, and in one instance, loss to the gardener's family. In each case it has been based on rumors going around that the gardener is giving up his position, to which there has been no foundation, and resulting in numerous applications to the employer, and in return resignations on the part of the gardener. One gardener gave in his resignation on a week's notice, and another for a little more.

Before impairing a fellow gardener's position, every means should be taken to verify such rumors. There truly can be little comfort in being responsible for a man losing his position, and thus bringing misery to his whole family.

GARDENERS' CONFERENCE AT CLEVELAND

A gardeners' conference will be held under the auspices of the members of the association residing in Cleveland and vicinity, at Cleveland during the week of the National Flower Show in that city, March 25 to April 1. The meeting will be held on the second or third day of the show. Full particulars will appear in the next issue of the *GARDENERS' CHRONICLE*.

A master gardener knows that he receives from his garden no flowers that are unworthy of a place in beauty's bouquet.

Weeds are the only flowers that are not fully understood.

Sins are often virtues in disguise.

Between heaven and hell there is no boundary line.

A cartoon clipped from a penny newspaper may do the soul more good than the most learned sermon.

A pencil's note or a printed paragraph an inch long may open one's eyes to more knowledge than one often finds between the covers of a pretentious book.

To know these truths is to know the pearl that leads to wisdom.—*Selected*.

AMONG THE GARDENERS

Does any member of the association know the present address of Mr. William Puffpaff, formerly with Mrs. C. W. Goodyear, Buffalo, N. Y., and Mr. Melburn, formerly with Mr. Thomas Adams, Bayshore, L. I.? If so, will he please advise the secretary?

Angus G. Ross, who was for many years superintendent of the late Jonathan Thorne estate, Bridgeport, Conn., has accepted a similar position on the estate of S. B. Thorne, Greenwich, Conn.

Thomas Twigg has secured the position of superintendent on the E. F. Luckenbach estate, Port Washington, L. I.

David Watson accepted the position of superintendent to Dr. J. Henry Lancashire, Manchester, Mass.

Archie Campbell secured the position of gardener to J. F. Havemeyer, Ardsley, N. Y.

Robert Finnie has accepted the position of executive foreman of Allegheny Cemetery, Pittsburgh, Pa., under William Falconer, superintendent.

ROBERT BOTTEMLEY

As the *GARDENERS' CHRONICLE* goes to press, the Secretary has learned of the death of Robert Bottemley, the superintendent of Brush Ridge Farm, New Canaan, Conn. Mr. Bottemley was one of the oldest members of the association.

NEW MEMBERS

The following new members have recently been added to our membership list: Walter T. Thurley, Dalton, Mass.; James Daddio, Westbury, L. I.; A. J. Long, Warrenton, Va.; James F. Pritchett, Great Neck, L. I.; Harry Lindberg, Council Bluffs, Iowa; John Woodger, Scarsdale, N. Y.; Nicholas H. Lean, Arawan, Mass.

A MESSAGE FROM THE EAST

"Arawa," Rotorua

Residential Hotel, December 10, 1921.

Dear Mr. Ebel:—

Have been in New Zealand a week, and leave on the 15th for Sydney. This is an ideal country for plants and flowers.

One will see growing beautifully in absolutely perfect health in the same beds or borders, specimens of the following: Azaleas, *indica* types, 6 to 10 feet high and camellias 9 to 12 feet, ericas, and even to Cavendish pine. The Forestry Department tells me *Erica pyramidalis gracilis* is spreading all over this district and *Daphne* is 10 feet across and 4 feet high; also big masses *Hydrangea otaksa* and the French varieties as large as a hay cock, and literally covered with flowers.

The roses are splendid for size and color. I saw the trade rose exhibit of W. E. Lippiatt, of Otahuhu, at Auckland Fair last Saturday. He showed 35 novelties all new for 1921 in his rose exhibit. He lost two sons and a brother in the war and is still going strong. That's the stock we are all proud of. More power to you, Brother Lippiatt.

Had a couple of days with the Government Forestry Department. The fern forests are the dream of a life time. Hope to have the pleasure of telling the growers at Greenwich all about it.

No use telling you about the fishing, as some of the boys would say, "Just a fish story." Honest, we go fishing for trout in a row-boat and take a power scow to bring the catch home.

Splendid agricultural and dairy farming country, and fine horses, cattle, sheep, etc., are here. The people are fine, clean, healthy citizens; and the children are just little kings and queens. I saw some fifteen of them ride in from the farms in one bunch to school on their ponies, one, two or three on a pony, bare back. All were dressed and wearing rubber coats as it was raining. There is a paddock near the school where they turn their ponies loose during school hours. No royalty ever had a better time. Schools and hospitals are free, and are supported by the State. If we can afford to educate our children we ought to be able to afford to take care of their health in sickness and distress.

We left Vancouver on the 12th of November and arrived at Auckland on the 3rd of December, via Honolulu and Luna. It was warm in Luna and for ten days after crossing the Equator. I expect to spend Christmas in Toowoomba, Queensland, with a sister of mine, and after seeing some of Australia, go on to the Philippines and Japan, etc., and then back to the United States by Frisco and home about the middle of March.

Well the fly rod is ready, and the boat and scow are waiting. I am off for the Rainbow trout, 4 to 12 pounds.

Regards to all,

Sincerely,

JOHN H. TROY.

I*F you are engaged in the pursuit of horticulture whether for pleasure or for profit you cannot fail to be interested in the Gardeners' Chronicle, for, as you will observe by studying its columns, it is devoted exclusively to the science of floriculture and horticulture.*

LOCAL SOCIETIES

NEWPORT BRANCH

The Newport Branch of the N. A. G. held a meeting December 7, at which Andrew L. Dorward was re-elected Chairman, and Frederic Carter, Secretary for the coming year. It was also voted that future meetings be held at the call of the chairman.

William Gray gave a very interesting account of his visit to the annual convention and of the very enjoyable time he had. The annual report was discussed at some length, some valuable suggestions being offered which are to come up for further discussion at a future meeting.

The Newport Branch feels very encouraged by the organizing of a local branch in Nassau County, also of the proposed one in Boston, and it feels sure others will soon follow. The local branches are going to be the backbone of the association when enough are organized to do effective business, and when the members will take the work of the association more seriously than some do at the present time. We feel the association is making more and more progress every year, and that 1922 will show still more the spirit of co-operation and progressiveness is the New Year wish of the Newport Branch.

FREDERIC CARTER, Sec'y.

TARRYTOWN HORT. SOCIETY

The annual meeting of this Society was held in Masonic Hall, on Dec. 29th, with President J. McDonald and a good number of members present.

One life and four active members were elected. James Scott, John Grant and Edward Kane were appointed judges and awarded E. W. Neubrand's prize for Best Pot Plant to Wm. Graham for a splendid plant of *Begonia melior*.

Election of officers resulted as follows: President, Thos. Wilson; Vice-President, Wm. Graham; Secretary, E. W. Neubrand; Assistant Secretary, E. W. Neubrand, Jr.; Treasurer, John Featherstone; Rep. Secretary, W. G. Weston. James Scott installed the new officers in their respective stations with words of kindness and advice mixed with ready wit and humor, which tend so much to making such events enjoyable and memorable.

The Treasurer's report shows the society to be in excellent condition, financially. The society's dinner will be held January 10th.

W. G. WESTON, Rep. Sec'y.

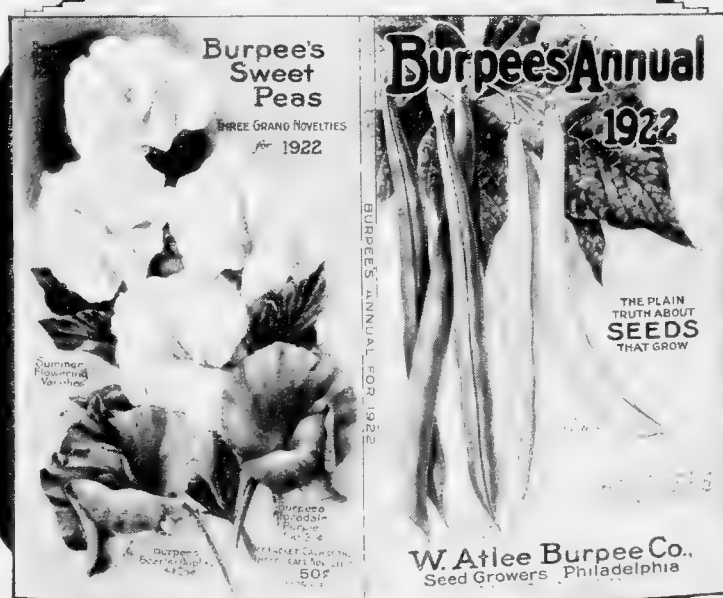
WESTCHESTER AND FAIRFIELD HORT. SOCIETY

This society met in the Knights of Columbus Hall, through invitation, on Tuesday, Dec. 13. As yet we have not secured a permanent meeting place, but this will be taken care of at our next gathering.

The officers for 1922 were elected to serve as follows: President, James Tough; Vice-President, James Linane; Secretary, George Hewitt; Treasurer, James Stuart; Corresponding Secretary, H. Jones; Executive Committee, Robert Wright, Walter Slade, Alex. Gregg, John Rutherford, Edwin Beckett.

Business was suspended and a short silent period asked for by our president as a token of esteem and regret for our brother, Robert Williamson. Through his sudden and unexpected death we have lost one of the oldest, most active, and highly respected members of this organization. He was one of

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the few that first formed this society and during its twelve years of existence he has been conspicuous at all times by his untiring efforts in its behalf. He has served in every office giving his best at all times not only for the society but for his fellow gardeners also. His genial disposition added greatly to his popularity and the high standard of integrity evidenced in all his dealings made him a member endeared to us all. He was carried to his last resting place by members of this society, men who belonged to the profession in which his greatest and dearest interests were always centered.

GEORGE HEWITT, Sec'y.

NASSAU CO. HORT. SOCIETY

The annual meeting of this society was held on December 14, in Pembroke Hall, Glen Cove. President Noonan occupied the chair. E. H. Crawford was elected to honorary membership and two petitions for active membership were received. James McDonald, James Michie and James Hol-laway judged the exhibits.

The treasurer's report shows the society to be in a strong and growing position. President Noonan appointed John F. Johnston chairman during election of officers and Messrs. Purchase, Trepass, and Adler acted as tellers. William Milstead was elected President; John Forbes, Vice-President; Ernest J. Brown, Treasurer; Edward Harris, Recording Secretary; Arthur Cook, Corresponding Secretary; William Noonan, trustee for three years.

William Milstead will select his executive committee. J. Everitt, E. Westlake and Ernest Brown will make arrangements for the annual dinner of the society to be held on January 25.

ARTHUR COOK, Cor. Sec'y.

STAMFORD HORT. SOCIETY

Regular monthly meeting of this society was held on Friday, January 6, President Henry Wilde in the chair.

At this meeting the installation of officers took place, and the following are the officers for the coming year: President, Henry Wilde, re-elected; Vice-President, J. Ruth-erford; Treasurer, A. Pederson; Secretary, O. A. Hunwick; Corresponding Secretary, T. F. Chrystal.

T. F. CHRYSTAL, Cor. Sec'y.

TUXEDO HORT. SOCIETY

The annual meeting of this society was held on Wednesday evening, January 4.

The following were elected as officers for 1922: President, John Livingston; Vice-President, Wm. Ward; Treasurer, Duncan MacGregor; Secretary, James Davidson; Executive committee, David MacIntosh, Joseph Tansey, Charles Davidson, Thomas Lyons, Robert MacClintock.

The reports of the Treasurer and Secretary showed the society to be in good condition.

JAMES DAVIDSON, Sec'y.

SEWICKLEY HORT. SOCIETY

At the last meeting of a very interesting year the above society elected the following officers for the new year: President, Manus Curran; Vice-President, Herman Rapp; Treasurer, W. W. Scott; Secretary, Geo. W. Kirk.

The society is growing in membership, and greater interest is being taken in horticulture by amateurs.

G. W. KIRK, Sec'y.

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On account of its varied products the coconut (*Cocos nucifera*) is the most important of all cultivated palms. It is estimated that the world's output of the two coconut products, copra and coir, before the late war, was 50 per cent greater than that of rubber and only 40 per cent less than that of gold. The coconut is widely cultivated near the sea in all tropical countries where the average temperature is 70° F., and where there is no great variation in temperature between seasons. Owing to the thick fibrous outer covering of the fruit the entire nut will float and retain its power of germination for a considerable time, which no doubt has been a factor in its distribution along seashores. As its nearest relatives are all native of America it is believed, despite its very wide geographical distribution, that the coconut palm is of American origin. However, it is said to be indigenous to the Cocos or Keeling Islands of the Indian Ocean and to have been carried westward in prehistoric times. It was cultivated in Polynesia and Malaya for an edible crop before its discovery by Europeans.

In tropical countries where the coconut is grown practically every part of the tree is used in some form by the natives. The roots are used as a medicine, particularly as an astringent, and are frequently chewed as a substitute for the betel or areca nut. They are also used in basket-making, being interwoven with fiber. The trunk, when mature, develops a very hard external covering which is used in native hut building and is occasionally exported for cabinet work under the name of porcupine wood. It takes a high polish and is recognized by its peculiar ebony-like streaks irregularly disposed over a reddish-brown ground. The young leaves, particularly the leaf bud, is much sought for as a vegetable or salad, and the mature leaves are put to many uses, such as mats, baskets, shingles for native huts, fences, clothing, and ornaments. The leaf-stalks or petioles are made into tool handles and when cut into short lengths and frayed at one end are used as brushes. The midveins of the leaves furnish a strong fiber which is very desirable for basket-making, strainers, and native fishing tackle. The large fibrous triangular-woven sheaths which surround the trunk and the base of the leaf-stalks are cut into various shapes to form mats. The fibrous coverings of the flower spikes, when dried, are used as torches and when twisted and soaked in water are made into coarse rope.

The mature nuts enter into the composition of various native sweetmeats and curries. The water enclosed within the unripe fruit is a cool refreshing drink that is much appreciated in most tropical countries and constitutes the only available drinking water in some of the smaller oceanic islands. Coconut milk is prepared by grating the white meat, mixing it with water and subsequently straining the mixture through cloth, the so-called milk consisting of the oil in suspension with a little mucilage and sugar. It is extensively used in India as a substitute for cow's milk.

The coconut enters into the superstitions of the natives of the Malaya-Polynesian region. Murray tells of a tribe of cannibals, among whom it is not proper for the slaver to partake of his victim, this privilege being reserved for his companions, but he may eat the heart, if during the course of his meal he sits on one coconut and balances himself with his feet on two others.—G. H. Pring, *Missouri Botanical Garden Bulletin*.

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Then what a change would come about
In all this dark world's story,
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—Frederick M. Steele,
C. S. Sentinel.

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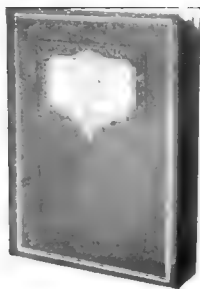
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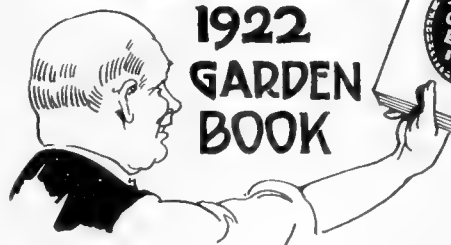
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

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No. 2

Things and Thoughts of the Garden

MONTAGUE FREE

WE started the last lap of our horticultural pilgrimage in England by boarding a train at Paddington Station for the two hundred mile, non-stop trip to Torquay. The journey westward was not so enjoyable as we had anticipated; for too many others had the impulse to travel by that particular train, and, as most of them got to the station before us we were compelled to spend the greater part of the journey sitting on an angular and squashy suitcase in the corridor. Our anatomy is somewhat elongated and occasioned considerable distress to ourselves, and to exploring passengers in their quest for the dining car. However, by entering the dining car as soon as it was open, and dawdling over luncheon until we were invited to leave to make room for other hungry mortals, a comfortable seat was obtained for part of the trip.

Our main object in visiting the west of England was to call on Mr. R. Irwin Lynch, M. A., V. M. H., formerly curator of the Cambridge Botanic Garden, who for reasons of health has retired from his charge at Cambridge and taken up residence at Torquay.

Our first position was under Mr. Lynch and to him, more than to any other, we owe whatever ability we may have as a gardener.

The pleasure of talking over old times, and the profit gained from discussing horticultural matters with so distinguished an exponent as Mr. Lynch, can readily be imagined. His place in the foremost ranks of eminent horticulturists has been recognized by the bestowal of many honors, including the V. M. H., perhaps the highest and most coveted distinction obtainable in the realm of horticulture. His work in developing the Cambridge garden into one of the foremost botanic gardens of the country caused the University to confer upon him the honorary degree of Master of Arts. All this of course is most gratifying to one of his "old boys."

* * *

It was not until our journeyings brought us to the southwest of England that turf was encountered of a greenness and texture that one associates with the far-famed English lawns. The excellent condition of the lawns in this section was due to the fact that the rainfall of the western part of England is much greater than that in the east and in this year of unparalleled drought the western gardeners were distinctly at an advantage in comparison with those in the east. Doubtless many Americans would be surprised to be told that there is great variety in the climate of such a dinky little island as England, but its

topography is such that there is a vast difference in the amount of rainfall received in the various districts. For example, in one part of the mountains in the county of Cumberland the rainfall is over 150 inches a year. On the west coast, generally, the average rainfall is from 36 to 66 inches per annum, whereas in the eastern counties it ranges from 20 to 30 inches only. This is due to the fact that the high ground on the west intercepts the moisture-laden winds from the Atlantic. Incidentally the average annual rainfall in the vicinity of New York is about 45 inches.

* * *

Torquay was our headquarters for gardening exploration in this section. In the town itself are many features of interest to the gardener, for here the climate is such that it is possible to grow many sub-tropical plants in the open air all the year round. Many of these are to be found planted out along the slope of a steep hill overlooking the bay. Here one may find, growing luxuriantly, the Canary Island date palm, *Phoenix canariensis*. The blue gum of Australia, *Eucalyptus globulus*, also flourishes, reaching a height of 40 feet, and blooms profusely. This species has been planted quite extensively in California where it is said to thrive exceedingly well. *Cordylina australis*, the *Dracena indivisa* of seedsmen, which is widely grown as an ornamental plant for vases in America, is extensively planted, both along the Rock Walk and in the pavilion grounds. The effect that it gives is extremely un-English, and one is reminded of the sub-tropics rather than of so northern a country as England. At Torquay it attains the stature of a tree, and branches and blossoms freely.

One remarkable feature of Torquay is the plants growing on old walls. The species most commonly met with is the red valerian, *Centranthus ruber*. Although it was the tail end of the season when we saw it, it was still attractive in many places and the wealth of old flower stalks gave evidence of its profuse blooming earlier in the season. This is a plant worthy of the attention of American gardeners who are confronted with the necessity of finding material that will grow in poor, dry soil.

There is a remarkable fruiting specimen of *Ficus repens* growing on the walls of St. Matthew's Church at Chelston, a suburb of Torquay. As is well known, the foliage of the adult and fruiting branches of this plant is entirely distinct from that possessed by the young plants when they are clambering over a wall or tree trunk. Under suitable conditions, when the plant has occupied the

space allotted to it, its tendency is to throw out almost at right angles, strong growths which have leaves much larger than those of the creeping form. A similar phenomenon is to be seen in the case of English ivy when growing on walls in England. If neglected it will send out these strong growths which will ultimately flower. The specimen under notice, of *Ficus repens* (or *F. pumila*, to give it its up-to-date title), fills the space between two buttresses of the church and attains a height of over 13 feet.

* * *

The most interesting garden seen in Torquay was that of Mr. Eden Phillpotts, the famous novelist. Here, gathered together in a space not much exceeding an acre, was a collection of interesting plants in such variety as would be almost impossible to find in this country in similar conditions. Not only were the plants interesting themselves, but in many cases their growth was such, favored no doubt by the amiable Torquay climate, as to make one, coming from a section where the Winters are of a more rigorous nature, sigh with envy.

For example there were *Buddleias* fully 25 feet in height, and a splendid specimen of *Berberidopsis coralina* 20 feet high. This beautiful climbing evergreen is a native of Chile and is hardy only in favorable sections even in England. The leaves, two or three inches long, are of a beautiful dark green, and somewhat spiny along the margins. Its small, globular, crimson flowers are abundantly produced on long pedicels in leafy racemes.

Here, too, the climbing Butcher's broom, *Scemele androgyna*, from the Canary Islands, was thriving vigorously out of doors. This is one of the most handsome of vines and imparts a curiously tropical appearance in any garden in which it may be grown. It is usually grown as a greenhouse plant and is valuable for this purpose when room can be afforded it. Its small, rather inconspicuous flowers are produced on the margins of the leaf-like branches, in this respect being comparable to the smilax of the florist.

This garden is fully described in a vastly entertaining and whimsical fashion in Mr. Phillpotts's book "My Garden." In his introduction he states that he grows over 1000 different genera and this, he it remarked, in a space of about one acre. It is perhaps this tendency of the amateur gardener in England to grow collections of as many species and varieties of plants as he possibly can that serves much to distinguish him from his confrere in this country. Everywhere throughout the whole of England one may find small gardens, containing a wonderful variety of plants lovingly tended, in part at least, by their owners. It is partly made possible to grow such a large number because of the hold that rock gardening has on the hearts of the English gardeners. The plants used for this purpose, in many cases, are so diminutive that an enormous number of species may be grown on a relatively small area.

In this connection, it may be worth while to again raise the question as to whether more pleasure is obtained from a garden having a great variety of plant material, or from one where the garden picture is all important and made with the use of as small a variety of material as possible. Those who look on the garden as a purely artistic affair are always prone to depreciate the use of a large number of species. This applies in England as well as in this country. We will admit the fact that it is impossible to obtain such truly artistic results when the aim of the gardener is to maintain a large collection of plants. Yet, does not a garden made on the latter principle, assuming of course that the plants are spaced with as much regard to artistic consideration as possible under the circumstances, present to the plant lover a greater variety of

interesting features throughout the year than one designed by a landscape artist who ignores the intrinsic interest that plants in themselves possess, and has no other purpose in view than that of creating a beautiful composition?

The inevitable rock garden was of course in evidence in Mr. Phillpotts's garden but in this case a distinct departure from the usually accepted type was noticed. It might perhaps be described as a "formal" rock garden—formal in the sense that no attempt whatever is made to simulate natural surroundings. Its top is bounded by the straight line of a terrace and its bottom by a similar straight line, parallel to the former, of a gravel walk. The front of the rock garden is raised about two feet above the level of the walk, extends backwards about eight feet, rising to a height of five feet, and covering what would normally be the ordinary terrace slope. The rocks are arranged as naturally as possible and the "pockets" are planted with a varied and interesting collection of alpine and other plants. The dainty wild *Cyclamens* were thriving satisfactorily here, and also the rare *Erinacea pungens*, a dwarf shrub with violet-blue papilionaceous flowers. *Retinispora Sanderi* (*Chamaecyparis obtusa*, var. *ericoides*), one of the most charming forms in this valuable genus, here proved its fitness as a rock garden evergreen. The quaint and column-like *Juniperus communis hibernica*, was represented in several perfect specimens.

A rock garden of this type may contain suggestions for those who are faced with the problem of maintaining a suitable growth of grass on a terraced slope. In those cases where the slope is so steep as to make it difficult to maintain grass in good condition, it might be worth while to consider facing the slope with rocks and planting it with suitable material. This would be specially serviceable in a small garden where room was unavailable elsewhere for the growth of alpine and rock plants.

It may be mentioned, by the way, that the printed page of "My Garden" presents a strange appearance to those accustomed to orthodox gardening publications, as Mr. Phillpotts for the most part dispenses with the use of capitals for the initial letter of the generic names of the plants. In the case of the specific names, however, he is usually quite orthodox and, in consequence, throughout the book we come upon names written as follows: *geranium Lancastriense*, *bambusa Fortunei*, *fritillaria Seaverzowii*. Whether Mr. Phillpotts is establishing a precedent of his own in this case, or whether he is simply following someone else, we do not know. The Zoologists, in their code of nomenclature, have eliminated the use of capitals in the case of specific names, but we have never heard of anyone dispensing with them for the initial letter of generic names.

This hurried trip into Devon was sufficient to indicate why this county received the sobriquet "glorious Devon." The richness of its agricultural districts, the beauty of its scenery, and the flavor of the far-famed Devonshire cream, was sufficient to prove, to us at least, that the native Devonians are not too boastful in using the adjective "glorious" in describing their county. One soul-satisfying trip was made by automobile over Hay Tor on Dartmoor. On the moor, usually associated with grey granite rocks, were immense patches of golden gorse and purple heather intermixed which provided a picture that was not surpassed in any of the gardens that we had the privilege of visiting.

It was interesting a day or two later to compare in our mind's eye the character of the vegetation that one sees in these upland, moorland regions with that to be found on the chalk downs that, in a large part, make up

(Continued on page 50)

Funkia—Plantain Lily

RICHARD ROTHE

FUNKIA—syns. *Hosta*, *Sausurea*—the plantain lily is a hardy herbaceous genus of the large order *Liliaceae*. Most of the garden species of funkias are well known and easily obtainable, but as to their wide scope for effective employment many of us have only a vague idea. Planted upon a border, sunny throughout the whole day, occupied by strikingly free flowering perennials and annuals, they are apt to prove disappointing. Their spikes of white and lavender bell-shaped blossoms, under the given condition, do not conspicuously augment the vividness of color arrays and, throughout the Middle Atlantic and Southern States, the foliage does not always endure the full force of the mid-Summer sun without injury. However, it is usually the reverse in semi-shady situations or in positions with full sunlight limited to morning and evening hours. Then, in well-enriched and deeply dug soil plantain lilies are sure to develop a captivating ornamentality in perfect foliage and, during mid-Summer, a very acceptable display of

ovata—noteworthy *ovata albomarginata* and *aurca variegata*. The latter is also found listed under the name *Japonica aurca variegata*. Unquestionably the most stately of all is the true *Funkia Sieboldiana*, producing enormous



Funkia lanceolata albo marginata

flowers. Funkias are one of the few dependable items for solving the always more or less difficult problem of establishing a permanent growth on narrow borders running along northern housefronts. If not neglected in watering, the *lanceolata* and *ovata* types even hold out well and look presentable under awnings. When arranging shore-plantations of lake and pond, or, when engaged in brookline gardening we find especially the large robust growing species simply indispensable. Growing in the full sunlight near the water line the foliage rarely ever suffers by reason of excessive heat.

Funkia subcordata grandiflora, a species from Japan, with light green, heart-shaped large foliage and, during mid-Summer, glistening white fragrant flowers, is a universal garden favorite of long standing. The chief attractions of *Funkia Fortunei* are the steel-blue medium sized foliage and light lilac racemes on stems not extending much over the leaves. *Funkia lanceolata*, with long narrow green foliage, is the freest flowering plantain lily, its numerous lavender blue bells being borne on long graceful stems well above the plant. *Funkia ovata*, syn. *caerulea*, distinguished by broad green foliage and pale lilac spikes is one of the best for placing near the water-line. Strikingly beautiful are the variegated forms of



Funkia subcordata grandiflora

steel-blue leaves of tropical luxuriance. For perfect development this species needs a rich sandy loam and an open moderately moist situation. *Funkia minor alba* is a wavy green leaved, smaller growing type, producing long-stemmed white flowers, which, like those of *lanceolata*, are useful for cutting. Of a number of handsomely variegated forms I mention *Funkia robusta elegans variegata*, *lanceolata albo marginata*, *viridis* "Thomas Hogg" and the well known *undulata media picta* frequently used for edging purposes.



Funkia ovata, syn. caerulea

Funkias are best propagated by division early in Spring. They may be also raised from seeds sown in cold frames. Seedlings of variegated forms come true to only a small percentage. It requires from two to three years' cultivation of seedlings before obtaining stock of trade size. Winter protection is required only in northern States.

The Love of Flowers

BERTHA BERBERT-HAMMOND

How beautiful is a flower!
It is like the soul of a child
Set free and growing wild
In the sunshine and the shower.

So fragrant, so fair, so true!
Of the spirit's texture spun,
It smiles with the smiling sun,
And it weeps with the weeping dew.

God loves it—and why not we?
'Tis a face with a soul a-shine,
'Tis a thought of the mind Divine,
'Tis a hint of the life to be.

AS flowers are one of Nature's choicest and most beautiful gifts to mankind, and appear almost human in some of their characteristics, it is quite natural for those who know flowers to entertain a sort of feeling of friendship and warm affection for them. An admiration for these "stars that on earth's firmament do shine" is enshrined in the heart of every lover of the beautiful, and fortunately, it is no longer considered effeminate for our boys and men to display their love and appreciation of flowers.

Many of the European nations have been in advance of us in floral appreciation. Concrete evidence of the appreciation and love of flowers is found in Japan in the almost universal use of names of flowers in the naming of the daughters of the nation and in the designation of their festivals and of certain parts of the year. The Japanese words for cherry-blossom and for chrysanthemum are commonly used as names for girls, and plum and cherry blossom time are observed in the Spring and maple-leaf and chrysanthemum season in the Autumn.

The educational and ethical value of a love of flowers cannot be doubted. The appreciation of the miracle of growing things, and the love of the beautiful instilled into the receptive mind of a child will almost invariably exert an influence that will tend to develop the finer side of the character. As the love of flowers seems innate in a child, it is necessary only to encourage and stimulate this natural tendency and direct and guide the enthusiasm until an intelligent and permanent interest may be established, one that will foster the best development of the individual. With a set of garden tools, carefully chosen in regard to their suitability and adaptation to the size and strength of the child, there is no exercise that is likely to prove more healthful, and fascinating than a moderate amount of digging and delving in the ground. Some persons claim that this nearness to Mother Earth, and the

actual contact of the hands with the soil, exerts a soothing effect on the nerves that is almost magical, and that the transmission of vital currents is effected from the humus in the soil to the human body. John Dryden alludes to the potentialities of outdoor exercise in the following stanza:

Better to hunt in fields for health unbought
Than fee the doctor for a nauseous draught.
The wise for cure on exercise depend;
God never made His work for man to mend.

The constant association with the soil and growing things will leave a mark that is not readily effaced. In her book entitled "Freckles," Gene Stratton-Porter says with truth: "Nature can be trusted to work her own miracle in the heart of any man whose daily task keeps him alone among her sights, sounds, and silences." Those outdoor workers who have labored understandingly and in harmony with Nature, have come to believe that there is a tangible reciprocity between the skilled gardener, the soil and the plant kingdom that gives ample evidence of a responsive higher power, without which the miracles of field and garden would not be possible. We may dig the soil, plant the seed, but without the co-operation of that great and beneficent power, which pervades the universe, our labors would be in vain.

There is something in the composition of normal mankind that demands communion with the outdoors. For centuries man has taken enjoyment and comfort in "green growing things." Dion Clayton Calthrop says: "To garden is part of every man's philosophy. To sow the seeds, to watch the tender shoots come out and brave the light and rain, to see the buds lift up their heads, and then to catch one's breath as the flowers open and display their precious colors, living, breathing jewels, is enough to live for."

Even when grown for pleasure only, flowers have and hold an important place in the economy of life. They exert an uplifting and refining influence that is within reach of thousands of persons who by circumstances are denied the refinements and the æsthetic joys of good music and fine paintings. That person who has in his heart an unaffected love for flowers, has within himself an unfailing source of pleasure and comfort and a capacity for a keen appreciation of the higher things of life. As F. W. Burbidge writes: "Devotion to Flora as a queen among us is as yet a living truth, and among or around the hearts of all true gardeners there is woven a thread of twisted gold."

A Famous Roof Garden

GEORGE CECIL

ALTHOUGH a roof-garden is not an uncommon thing, one which includes fruit and vegetables, in addition to the usual shrubs and flowers, is a novelty. A garden of this description is to be found in Paris—located on the leaden roof of the Louvre.

Seventy-one years ago the chief custodian of the Louvre leads pined for some means whereby he might

utilize his leisure, and, at the same time, beautify the large expanse of flat roof in his charge. One fine day the *plombier en chef* was struck by the idea to convert the leads over the Colonnade into a roof garden. "Figure to yourself," said he to a sympathetic friend, "the space is here, the blessed sun shines in abundance, and I have water to spare. Why, then, should I not construct a

roof garden which besides being the joy and pride of our *belle France*, will become a monument to French industry for all time?" At first the scheme hung fire, the powers-that-be, from whom permission had to be obtained, objecting strongly to the innovation. Not, in fact, till yards of red tape had been expended upon the tying-up of a voluminous correspondence dealing with the subject and covering a lengthy period, did the guardian of the leads receive a favorable reply. But, even then, all sorts of restrictions were imposed upon him, and only when he had undertaken to refrain from laying down earth on the sanctified roof was the desired permission finally accorded.

VIOLETS AND CACTI

Commencing in a small way, the amateur gardener first turned his attention to shrubs, planting them in tubs. Shrubs, however, afforded little scope, even though much success was obtained with flowering varieties, and the industrious plumber be-thought himself of flowers. A number of long, wide boxes were procured, and in them the proud owner of the garden reared Pelargoniums, Violets, Primroses, half a dozen different kinds of Carnations, Sweet Peas, Sunflowers, Tiger Lilies, and so forth. Rose bushes also repaid the loving care bestowed upon them, while the Chrysanthemum, finding the vast depth of the boxes suitable to their particular needs, flourished exceedingly. Even the *Cacti*, imported from exotic Mediterranean shores, took root, thus adding to the interest of the "*joli jardin aérien tout riant*," as George Cain has so aptly described it in his delightful *Nouvelles Promenades dans Paris*.

AN ORCHARD IN THE AIR

Having made the most of shrubs and flowers, the excellent plumber-gardener determined to embark upon a tiny orchard. So, ordering more boxes, he planted in them nursing fruit-trees which, alas! at first refused to bloom. Indeed, not for some seasons could so much as a single modest bud be seen, and the *propriétaire* of the ungrateful trees was depressed beyond words. But one never-to-be-forgotten Sunday in Spring the saddened plumber-in-chief woke to find the blossoms bursting through their coverings, and in due course the Cherries, Pears and Apples ripened. For the past few years the orchard has done all that could be expected of it. In fact, several kinds of eating and cooking apples are grown upon the roof of the Louvre, each being an admirable specimen of its kind.

A VINERY

First the Apple, then the Vine. Experiments were made, and for some time the grower drained the cup of disappointment to its dregs. Eventually, however, he hit upon the right sort of Vine, and his table was laden with grapes cultivated on the premises. In moments of confidence the present *plombier-in-chef* admits that the fruit lacks flavor; but upon ordinary occasions honest pride reduces their acidity. Of late, attempts have been made to induce Peaches, Apricots, Greengages, Plums and Figs to grow, and with disappointing results.

"LEGUMES A CHOIX"

After the roof-garden had been in existence for some years the plumber, prior to retiring from the official position which he had so long adorned, determined to hand down a kitchen-garden to the custodian appointed to succeed him. Having obtained permission from the authorities to extend the scope of his activities, he ordered more boxes, and before many moons had waxed and waned, Black, Red and White Currants, Strawberries and Raspberries, which usually require even more fresh air than a roof-garden affords, greeted the aged gardener's enchanted gaze. Lettuces thrive there; Peas al-

most sprout for the mere asking; and a miniature Asparagus-bed has repaid the attention bestowed upon it.

HEARTS OF FLINT

So succulent is the Louvre asparagus that, at the time of his departure, the gardener-plumber petitioned the Government to allow him an additional roof-space in which to lay down a second Asparagus-bed or, rather box. But the flinty-hearted authorities declined to oblige their old servant though they consoled him with a welcome pension. The plumber, however, did not live long to enjoy it. His thoughts ever were of the forbidden Asparagus.

THE LATE JUDGE MAREAN

THE passing of Supreme Court Justice Josiah T. Marean, while he was sojourning in Winter Park, Florida, has brought to a large number of persons in all parts of the country a keen sense of bereavement. Many who had not come within the sphere of his gentle and gracious personality, yet knew and felt the force of the



Josiah T. Marean

happy philosophy which ruled his life, feel a keen sense of loss.

By his going the horticultural world has lost a commanding power, for in his chosen field the Judge had no peer. Always a lover of flowers and out-of-doors, the Judge had for the past fifteen years devoted his knowledge and skill exclusively to the glorification of the Dahlia. In his lovely private gardens at "Daybreak," Green's Farms, Connecticut, he has worked patiently, ardently, but with sure and discriminating touch to bring forth every latent beauty of this splendid flower.

The triumphant results are known to all the flower-loving world. Almost it has seemed that among his tools in the "green workshop" at "Daybreak" there must have been a magician's wand, for surely magic was wrought—miracles of color and form, and such perfection of finish as has never before been even dimly approached in the development of the Dahlia. Each year fresh wonders were accomplished to the astonishment and delight of an evergrowing audience of admirers; each year it seemed possible for the tranquil worker to transcend perfection.

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The Vital Relation of Trees to Human Life and Wild Life

HON. MARTIN L. DAVEY

YOU know, we emphasize the word "freedom" here which means that we do as we please; "every man for himself and the devil take the hindmost." We started out, then, to cut a pathway for civilization across the land of freedom, and in doing so we have succeeded to a large extent in unbalancing the whole scheme of Nature. The trees, as individuals and in groups, are essential to all other forms of life. The bird life is absolutely indispensable for the protection of your trees, and those two things together, linked up with other forms of life, make the essential background for human life.

You know the average person does not seem to realize that the tree is a living thing, really alive. Oh, I suppose when you remind a man of the fact that it is alive, he will say "Yes," but he doesn't realize that it is really a living organism. It has a breathing apparatus and digestive organs; it has a circulation; it has sexual processes.

The tree breathes through its leaves, chiefly; the under side of the leaf is a mass of small openings, myriads of them, into which the air penetrates and gives up its carbon dioxide to be combined with the other food elements that are already in the leaf, having been brought up from the roots, and the oxygen is thrown off again for the benefit of man. It is true that this breathing process does not follow the principle of the bellows as in the human lungs, but it is just as real breathing as occurs in any other form of life.

Then the tree has a circulation, just as truly as you and I have. Away down under the ground the little roots gather up mineral elements in solution; that is carried up in the sapwood all the way to the leaves and there undergoes the chemical change which makes it tree food. But in order that you can get this as a picture, I will ask you to imagine you are looking at the top of a stump, the cross-section of a tree. Right in the center you see the pith and around that succeeding layers of wood, each representing a year's growth. Originally, each of these layers in its turn was sapwood and served the purpose of a sap carrier. As it fulfilled that purpose and more layers were added, it became more and more dormant, so that in a large tree all these cells near the center are practically dormant, and as you go outward toward the bark you find the wood more and more active as a sap carrier. The last few layers just inside the bark are the most active; it is there where most of the sap goes up. The sap is pumped up from down underneath the soil and carried all the way up to the leaves, irrespective of the height of the tree—sometimes one hundred feet, sometimes one hundred and fifty feet or more—there it is transformed, digested. The mineral elements that were taken up in solution are combined by a wonderful process with the carbon that is extracted from the air, and that is all done in the leaf.

The leaf is probably the most wonderful factory that ever existed—more wonderful than any factory that man creates. It is there in the leaf that all food is created, food for man and food for vegetation. In the leaf, under the influence of sunlight, this digestive process takes place which creates the food that makes possible the continuity of all life.

Everything we eat, everything we wear, is manufactured in the leaves of vegetation. It is impossible for man to take into his system directly any mineral elements other than water and salt, and relatively small quantities of those; all others must first pass through the leaves of

vegetation and be transformed into organic substances. Thus we find that the leaf, speaking of vegetation generally, is the one and only connecting link between the organic and the inorganic worlds. And the great God who created the world and the life that inhabits it, made of the lowly leaf the greatest and most wonderful instrumentality of that life.

I have told you about the tree's breathing and its circulation. I have tried to describe, in a way, its digestive process, and now I want to tell you just a little about its sexual processes. In all life there are two fundamental principles; one is self-preservation and the other is reproduction. All living things must follow both of these principles and be governed by them. This is true of the tree as it is of other forms of life. The tree has its sexual organs in the flowers just as real and just as beautiful as in other living things. The male and the female exist as positive factors, sometimes in the same flower, sometimes in different flowers on the same tree. Sometimes you find the flowers of one tree all male or all female. The pollen is created in the male parts, is carried largely by the winds to the female organs, and there the wonderful relation takes place which carries the life on from one generation to another—a wonderful and a beautiful process. And thus we see that although the tree lacks the power of locomotion, though it has no intelligence and no nervous system, in all the other chemical principles it is just as truly alive as man himself.

Another very important phase of the tree question is reforestation. It is an aspect of the matter that comes, I know, very close to your hearts, as it does to my own, because it is bound up closely with your particular problems. I must say that anyone who is solid on the idea of reforestation is bound to be solid on the idea of protecting wild life; and having given some study to the subject I must confess that I am solid on the desirability of the passing of the Public Shooting Ground—Game Refuge Bill. I wish that I were now in Congress so that I might help along this worthy project.

In order to make you understand that these statements are not the result of my imagination and that they do not follow the principle that "the wish is father to the thought," I am going to read to you just briefly from the report of the United States Forest Service to the Senate, published about the first of June, 1920. This was in response to a Senate resolution:

"The outstanding facts reported by the Forest Service are:

"1. That three-fifths of the original timber of the United States is gone and that we are using timber four times as fast as we are growing it. The forests remaining are so localized as greatly to reduce their national utility. The bulk of the population and manufacturing industries of the United States are dependent upon distant supplies of timber as the result of the depletion of the principal forest areas east of the great plains.

"2. That the depletion of timber is not the sole cause of the recent high prices of forest products, but is an important contributing cause whose effects will increase steadily as depletion continues.

"3. That the fundamental problem is to increase the production of timber by stopping forest devastation. The virgin forests of the United States covered 822,000,000 acres; that are now shrunk to one-sixth of that area. All classes of forest land, including culled, burned, and

cut-over areas, now aggregate 463,000,000 acres, or a little more than one-half of our original forest.

Including everything, good, bad, and indifferent, "Of the forest land remaining and unutilized for farming or any other purpose, approximately 81,000,000 acres have been so severely cut and burned as to become an unproductive waste. The area—"

Think of it—this area that is wholly useless,

"—is equivalent to the combined forests of Germany, Denmark, Holland, Belgium, France, Switzerland, Spain, and Portugal. Upon an enormous additional area the growth of timber is so small in amount or of such inferior character that its economic value is negligible."

Some three hundred years ago there came to the eastern shores of this country a band of pilgrims, and they found what was then the greatest natural wealth, probably, in the world—land covered with a perfectly wonderful growth of trees. Captain John Smith sent back word from Virginia that he had discovered a land of inexhaustible fertility, and so it appeared. But now, less than three hundred years later, we find that thousands of acres in Virginia can be bought almost for a song because that which had been considered inexhaustible is gone—the fertility of the land has been destroyed. On the other rock-bound coast of New England the scene that greeted the eyes of the Pilgrims no longer exists. Three-quarters of the original forest area of New England is gone; half the remaining timber is in the State of Maine. This great section that was so richly endowed with natural wealth, so abundantly provided for, has now reached the point where it imports something like 30 per cent of its consumption, and is rapidly approaching the stage where it will import the major portion of that which it consumes.

The great state of New York some fifty years ago became the greatest producer of lumber in the Union; today it produces not more than one-tenth of its consumption, to be exact, thirty broad feet per capita as against a consumption of three hundred board feet. Then the tide moved to Pennsylvania, and Penn's woods became the greatest producer of lumber following New York. Today its production is less than enough for the Pittsburgh district alone—about 20 per cent of its consumption.

But that is not all the sad story of Pennsylvania. I wonder how many of you have taken a daylight ride across the Alleghenies. Those who have done so must have been shocked at the sight of miles upon miles of hills which have been absolutely robbed of their foliage. And that is not all. While the forests cover the lands the rains come down, percolate through the loose, porous soil into the subsoil, and from there find their way to the springs and thence to the little streams and rivers. It is the network of roots of vegetation in the loose, porous, fertile soil that hold the water in check and gives it continuity—and those who have studied this problem know that the question of water supply is tied up in the whole problem of the protection of the forests.

Then, the reckless methods of the lumbermen are employed and the trees are swept away—oh, so thoughtlessly. I sat with a gentleman yesterday afternoon who described some of the methods he himself had employed, and it almost made me heart sick as he told of how the little trees down to four inches in diameter were cut and the branches left behind, causing forest fires which destroy vegetation and also destroy the very means of holding the soil in place. When this has happened and your rains come down they wash the fertile soil into the streams and into the ocean, soil that it took Nature hundreds of years to produce—all because of the prodigal waste and recklessness of mankind.

We find that the tide moved up into the Great Lake States, where thirty or forty years ago there was such a wealth of timber that people said it could never be cut away—that it was inexhaustible. The original supply in the Lake States—Michigan, Wisconsin and Minnesota—was estimated to be 350,000,000,000 board feet. That has now been reduced to 8,000,000,000 board feet—from three hundred and fifty to eight billion. It is almost gone, including the great white pine that made that country famous.

And then the tide moved into the South Atlantic and the Gulf States, and that vast expanse of wonderful soft woods, the yellow pine, is three-fourths gone; our government estimates that it will be exhausted commercially in from fifteen to eighteen years. The section from which I come, Ohio, Indiana and Illinois, has almost ceased to be a factor in the production of lumber.

There still remains a considerable quantity in the south Appalachian States, but it is estimated by the government that that vast supply of hardwoods will be gone in from fifteen to twenty years. Then, we still have one remaining stand in the southern Mississippi valley, including the cypress; and that, it is estimated, will be gone in about twenty years.

There remain, in this great land of freedom and opportunity, the forest areas on the Pacific coast, in Washington, Oregon, California, northern Arizona and New Mexico, Colorado, Utah, Wyoming and Montana.

When you consider the immense figures, it looks as though these areas were inexhaustible, but every time you exhaust one territory you lay a heavier burden on the next; and thus your government has arrived at the conclusion that these vast quantities of timber on the west coast will be exhausted in about thirty or forty years.

So that we face a problem of forest destruction with all its attendant ills; and I say to those who are interested in wild life—if you forests go, your game and fish go with it. If wise measures are taken to protect the game, they will be taken to protect the forest; and if wise measures are taken to protect the forest they will be taken to protect the game—the two are linked up inseparably.

If I were to offer a solution for the problem, if I had this job to do myself, there are two things I would set about to accomplish. First, I would put all lumbering under government supervision; and I say that as one who hates the idea of government interference in business probably as much as anyone. But I would take it as the lesser of two evils.

I would put all lumbering from now on under the control of the government and under the strictest possible supervision and regulation so that these wasteful methods I have referred to cannot be continued, so that we may be able to protect what we have until we can grow more.

Then I would do another thing that perhaps would not be quite so popular in these days of taxes; still, we have so many taxes now that we are used to it. I would put a tax of one dollar per thousand feet on all lumber cut from now on and every dollar of that money I would put into reforestation.

In other words, we may talk about this question as much as we like, but unless we get down to some concrete proposal, some definite method of procedure, we shall never solve the problem or successfully meet its attendant difficulties. We must get some kind of action, and that without delay.

One more thing I want to say, and this in order to emphasize the importance of the question as bearing upon the future of our country. It was not so many years ago when China had as wonderful a covering of trees as we have now.

It is not so many years, either, since China cut those trees away and burned over the ground; and today there are frequent appeals from China for help. Famine stalks over the land; they have one crop in seven years, and at the other times they are not able to produce it. The destruction of their forests has carried with it, to a large extent, the destruction of the productivity of their land. Over those vast stretches its fertility is gone; and it is impossible for China to reclaim herself until she rebuilds her forests and grows them again to some size.

In the meantime, however, China has become and will continue to be a land of perpetual famine. And the very process that took place in that sad country is going on

here; yet we are doing nothing of any serious consequence to stop it.

So my plea to you, as it is to all whom I carry this message, is that we do something now while yet there is time; so that we may avert in America the destruction that has overwhelmed that vast country of the East.

We in this land of freedom who have boasted so long of our wealth, our inexhaustible resources; we who have inherited so much from the past, owe a debt to our children and our children's children. We owe it to them so to act that when they come into their own they will not point back to us with the finger of scorn because of our prodigal waste.—*Bulletin of American Game Protection Association.*

The Nephrolepis Chart

R. C. BENEDICT

THE illustration below shows the Nephrolepis chart which was exhibited at the Boston Fern Show in connection with the Brooklyn Botanic Garden fern collection. The chart represents one of the results of a study of these forms which has been carried on at the Brooklyn Garden for the last six or seven years.

relationship as indicated on the chart are numerous varieties of *Nephrolepis*, about 75 different kinds. Practically all the forms represented on the chart will be maintained constantly in this house, together with a collection of English varieties of Boston Fern and other forms of interest.

In connection with the chart, there is framed the following statement:

"The ferns in this house include practically all the best kinds for use as house plants. On the left bench are the kinds commonly sold as 'table ferns' because so many are raised and sold to fill fern dishes. Many of them are useful also as larger pot plants, and can be grown by anyone who can raise other house plants successfully. Even in ordinary apartment conditions, with dry air, drafts, too much heat, too little light, fumes from illuminating gas, irregular or too much water, they may be expected to remain decorative for weeks, sometimes months.

"The ferns in the center and at the right are also useful house plants. They are of further interest because they illustrate the evolution of new varieties of Boston Fern, the course of which has been worked out through studies carried on at the Brooklyn Botanic Garden, and is illustrated by the chart above.

"On the pedestals in the center are specimens of the wild 'Sword Fern,' the 'Boston Fern,' and its seven primary mutations or sports: 'Pierson Fern,' 'Harris Fern,' 'Scott Fern,' 'Foster Fern,' 'Roosevelt Fern,' 'Giatras Fern,' and the 'Gretna Fern.' On the bench at the right—with some overflow in the next house—may be seen practically all the other varieties shown on the chart together with some additional forms from England and elsewhere.

"In the chart, the varieties indicated by arrows show some reversion in characteristics toward the Boston Fern. All the rest represent progressive variations away from the Boston Fern. A considerable number of new varieties have appeared in the Garden collections."

A second frame in the same house is being installed containing photographs of some of the most common table ferns together with text descriptive of their cultural qualities. The aim of the Brooklyn Garden is to make this fern collection as educative for visitors as possible, both as to proper names of the various forms and as to

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Nephrolepis Chart

A copy of this chart has recently been installed in house 10 of the Brooklyn Botanic Garden greenhouses. In this house there are two groups of cultivated ferns. Accompanying the chart, and arranged partly according to the

A Lesson on Beautifying Home Surroundings

ARTHUR SMITH

FROM what was said last month it will no doubt be gathered that landscape gardening is very sharply distinguished from gardening. The successful practice of the former depends on the practitioner having an artistic temperament; an intense love for Nature; an intimate knowledge of plants with their preferred environments, and upon being familiar with all the many necessary preparatory details connected with garden making as a whole. Landscape gardening is making pictures with plants; while gardening is the growing and care of plants without reference to the picture. The entire motive of the true landscape gardener is to make a pleasing picture, which picture must have a landscape or natural effect.

As compared with the formal or architectural style of laying out grounds, the naturalistic has among other advantages, that of giving an infinite variety of effects extending throughout the entire year. As F. Schuyler Mathews wrote, "Nature puts so much variety into her reality that she is more beautiful than we can imagine." There is no monotony in Nature.

Those who have studied and understand Nature's method of grouping plants and who carry out the principles are not likely to plan the monotonous system of arrangement too often found in gardens.

It has been well said that a landscape has three dimensions—length, breadth and height. A consideration of the latter is of the first importance in avoiding monotony and unnaturalness. Those who have admired wild, sylvan scenery, realize the delightful attractiveness of its composition. Although it may lack the more conspicuous and strikingly floriferous species which we use in gardens, the effect as a whole shows very clearly what may be accomplished by good grouping, irrespective of the plant material used.

What a marked contrast to this is seen in many gardens. Plantings consisting entirely of shrubs are made and composed of a few species which grow into more or less long, monotonous looking belts of about the same height, with a flat, inartistic surface. Sometimes, to make such cases ten times worse, the natural beauty of individual shrubs is frequently extinguished and the production of flowers is to a greater or lesser extent—according to species—prevented, by shearing; by this means a uniform height is maintained, and absolute ugliness created.

The fundamental principle whereby a beautiful and inspiring picture can be made is to have a broken sky line combined with a billowy and wavy mass; bearing in mind in this connection what the plants will develop into, rather than what they are when planted. Shrubbery should always have some evergreen species intermingled with it for the sake of Winter attractiveness; evergreens also make for more seclusion which is so desirable in a garden.

While the above should be considered in all groupings, the boundaries of our home scenery should be made, by means of suitable plantings, to assume the irregularity of natural outlines, and at the same time when possible, advantage should be taken of any outside landscape effects as to prevent any limitation of boundaries to appear from the residence; this can generally be accomplished by having one or more places where the planting is confined exclusively to dwarfier species.

Another bad arrangement is to make the boundary planting follow the fence line so strictly and to be of

such uniform width all along, that the general view is not much, if any, superior to that of a mere hedge. According to the area of ground to be dealt with, more or less pronounced bays and promontories must always be a feature of belt-plantings, if for no other reason than, that they increase the apparent size of the garden.

In following with the eye the salient points of scenery we find it composed of lights and shades. These are produced by undulations, and the undulations again are produced by promontories and bays. While every effect has its outline, it should be so broken that none can tell where the boundary of each particular scene finishes. The various impressions observable from lawn to skyline should group themselves together as harmoniously as the leaves group themselves into masses, and as these masses again group themselves into the outlines of a fully developed tree.

The question of straight avenues of uniform sized trees comes to mind at this point. Unnaturalness of planting anything in straight lines must be obvious to most people who give any thought to the matter. At first sight a long avenue of trees may give pleasure through grandeur, historic association and age, but the same grand development along natural lines would add incomparably to the permanency of the pleasure to be derived. Walk through the grandest avenue and it will become tiring and monotonous to our sight long before the end is reached, and it will certainly fail to afford continual satisfaction. On the other hand a drive, however long, bounded by naturally arranged and broken groupings will ever satisfy; never become tiring to the senses; the ever-varying light and shade will lend new impressions; changes are created by every shift of sunlight and season, and it never fails to charm however frequently it may be seen.

The smaller the place the more objectionable do avenues and straight rows of trees become.

Throughout the year the unfolding and waning of plant growth gives forth continually varying and charming effects, not only in connection with one species planted alone, but more so when many species are planted together. To plan successfully the landscape development of land one must be thoroughly acquainted with all the changes to be observed at different periods of the year, otherwise there is danger of merely having certain effects for a short period in Summer and nothing which amounts to anything for the rest of the year. The aim of the designer should be to create a scene which will be more or less effective all the year around.

A great mistake is sometimes made when too many individuals of one species are planted together. It is true that in very extensive plantings upon large estates these individual groups may be larger than upon small ones, but even then the margin of difference is small. We should aim to intensify as much as possible the changes in effect which the seasons bring forth by having as great a variety as the area will permit, so that in any month throughout the year we can discover subjects for pleasure and admiration. When the senses have been gratified by one particular form and color, still others should be found to carry further and higher this sense of gratification; this may be obtained by passing from the observation of the characters of one species to that of others. Too much of one thing at one time—however good that thing may be—creates an unpleasant

feeling of satiation at one period and a void at another.

The effect of Time upon landscape development should have full consideration, although some people appear to forget this altogether, and they fail to understand that each year will see produced many new, delightful and surprising impressions. It is true that one may have moved on to their place trees of ten, twenty or more years old, and so produce at once effects which would require such number of years to develop if a start were made by planting young ones. Many people, however, find it intensely interesting to watch things grow, and by the use of young stock not only is this pleasure obtained, but there is a vast saving in the initial expense.

In studying how we may render our grounds beautiful, not only for a few months only, but for years, it will be necessary to have recourse to means adapted to the end. Some things endure but for a season, while others last for whole hundreds of years. Three points require our closest attention in respect to planting—permanency of effects, future effects, and present effects. In all our operations the various so-termed permanent plants must prove the basis. Ever-bounteous Nature has provided these in sufficiency for every display, the flowers taking precedence in Summer, rich colored foliage and fruit in the Autumn, and the continuance of fruit with evergreen foliage through the Winter.

It is not possible for any one to form a correct opinion upon a landscape planting unless they are thoroughly acquainted with the characters and habits of the material of which it is composed, and are also capable of visualizing the possibilities of its ultimate development. Many, in fact all, of the best in the way of trees do not show their fullest beauty until touched up by the hand of Time. In arranging all long-lived subjects the after effects must have full room to develop. Too often what may be termed future or prospective effects are not held in sufficient account. Sometimes in order to satisfy the owner's impatience for immediate effects landscape men, against their better judgment, plant too closely. Perhaps there would not be so much harm in this were thinning-out done at the proper time, but unfortunately this thinning is deferred until it is too late to prevent the harm being done. Were such matters seen to when required this might be obviated and quick-growing, short-lived subjects would not then be allowed to injure plants of a more permanent description, nor would good plants be allowed to destroy the beauty of each other by having to struggle amongst themselves for life. The duration of plants, to whatever class they happen to belong, holds an important place in our arrangements, for plants of the longest endurance are invariably the most worthy of the highest rank in our esteem.

Not only during time measured by years do we pass from one beautiful effect to another, but each succeeding month throughout the whole course of every year should have some special feature of beauty connected with it.

Some people are able to always live under conditions of more or less perpetual Summer; they may have a residence at Palm Beach, and another in Maine, with perhaps one in between these places, but they cannot, however, be said to have a home in its real sense and they know little or nothing of the continuously beautiful landscape effects which it is possible to create at one spot. With the majority the home landscape is always present and it should always be attractive. If it is not so, and if at any season there is lack of something interesting it shows lack of forethought in its planning and development. As John Burroughs said: "The Book of Nature is always open Winter and Summer, and it is always within reach and the print legible to those with eyes to read it."

We have emphasized the necessity for having the house harmonize with the country, and the more pronounced the discord between the house and its surroundings the less artistic will be the home. Naturalness is also always lost to a greater or lesser degree by drives and walks. These must be looked upon as necessary evils, and our object should be to minimize as much as possible their effect by reducing their area, and by constructing them of such material as will render the inevitable discord as little pronounced as possible.

Naturally the distance of the residence from the public highway and the extent of the ornamental surroundings, affect the length and number of the walks and drives. Sometimes the contour of the grounds enables the main entrance drive to run more or less below the natural grade. When this is so it is advantageous, inasmuch as the drive is to that extent invisible excepting when one is actually upon it. It is of considerable importance that a drive, which practically amounts to a lifeless line of gravel, should not intersect the grounds in front of the house, as it then becomes a disagreeable object, and it should not interfere with the general artisticness of the landscape plan.

As a good approach does more than anything else to create a favorable first impression, the entrance, which is the first point seen, should be in accordance with the style and size of the place, and it should be so adequately dealt with as to not only prejudice one in favor of it, but it should also be so arranged as to give a fair index of the general character of what may be expected of the grounds themselves. If the entrance is recessed from the street, the area of such recess must depend somewhat upon the size of the place and the distance to be traversed before the residence is reached. Obviously it would be out of harmony to have a very imposing entrance, deeply recessed, in connection with a small place with the house only a hundred or so feet from it.

The amount of, if any, architectural work in the form of brick, stone, or iron, connected with the entrance depends entirely upon the conditions. When gates are considered necessary, obviously they must have some kind of pillars to support them, but when such are not required and the entrance is in purely natural surroundings, the less of architectural effects the better.

Again alluding to the above mentioned point that an entrance should be some index to the character of the interior, it is very important to avoid violating what may be termed a fundamental principle of good taste, by any undue ostentatiousness in its treatment, especially if this is combined with a picayune treatment of the grounds inside. Cases of this kind become on a par with the biblical whited sepulcher, or as one writer puts it, like the elaborate, gaudy entrance to a ten cent show.

Whatever the subsequent direction taken by it, it is invariably best for the first portion of the drive to be at a right angle to the public highway, although it may sometimes happen that some modification of this rule may be advisable.

As a drive is for the purpose of reaching the house it should proceed there as directly as possible, at the same time graceful curves may be introduced when such are permitted by the conditions. Its course and direction will be chiefly modified by the contours of the ground and it should avoid passing through deep depressions or over high elevations. In principle, no curve in a drive or walk should be permitted unless there is an obvious reason for it, and meaningless snake-like turning and twisting are in worst possible taste. All curves should be gentle, and they should only be used to avoid something. When a

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Orchid Exhibit at the Missouri Botanical Garden

GEORGE H. PRING

OF recent date the garden orchid collection has been considerably augmented by the donation of the noteworthy Brownhurst collection, by the late D. S. Brown, of Kirkwood, Saint Louis. This splendid private collection combined with the garden botanical orchids, places it as one of the foremost of public collections, making it possible to present an exhibition equal to any other botanical garden exhibition.

In previous years, the flowering plants have been shown in mass formation arranged in alcoves upon tiers of stages which seem to be the adopted method. Occasionally we find the stages camouflaged with cork bark and then again we find rockeries built in artistic design. These pseudo creations have been used at the garden at various times despite the fact that it is misleading to the general public in so far as imparting habit of the growth of the plant and especially where the epiphytes are grown in pots, is it impossible for the layman to understand the difference between epiphytes and terrestrials or the saprophytes when they are all shown as one class. Previous years when people have been viewing the flowering orchids, one will frequently hear remarks as: "Oh, here are the orchids! Why, I thought they grew upon trees!" "Sure," replies the companion. "They're parasites." It is therefore manifested that the public should be enlightened as to the characteristics of the orchid by arranging the plants in a replica of their natural environment. The most familiar flower to the layman is that of the large mauve colored *Cattleya* and without this flower in quantity, there are no orchids, despite the fact that hundreds of other species and hybrids are shown.

In view of these manifestations, the garden has deviated from the average arrangement so that the visitor may study the individuality of both flower and plant, thereby familiarizing himself with the different habits of the

orchid and likewise suggesting that there are just as many showy orchids outside the genus *Cattleya*. The most natural way to educate the public is by copying the orchid as grown in the tropics. It was therefore decided to use the floral display house (Banquet hall for the N. A. G. Convention, 1920) so as to reproduce a replica of the Cordilleras of Colombia and Venezuela. During the past year all dead trees were collected from the garden arboretum and city parks, the

tops being used after they were cut to a height of twenty to twenty-five feet and the side branches cut to a convenient shape. Twenty-five of these trees were brought into the house and arranged in forest formation, interspersing with tall growing palms and overcoming the bareness of the branches by the use of *Tillandsia usneoides* in festoons. These trees were embellished with all the flowering epiphytes as *Cattleya*, *Laelia*, *Lachocattleya*, *Brassocattleya*, *Vanda*, *Acrides*, *Epidendrum*, *Coryanthes*, *Denrobium*, etc., and arranged so as each specimen could be readily distinguished from the other. The spacious brick floor was entirely covered with six inches of partially decomposed leaves, as one would expect to find when travelling through the forest, even the walks received this covering so as to suggest the beaten trail, so much so, that visitors at first were afraid to traverse the suggested area, thinking that the entire space was reserved for the display. All the terrestrial orchids were arranged beneath the



A glimpse of the orchid exhibit at the Missouri Botanical Garden

trees countersunk in this leaf mulch so as to hide the pots and to give the impression as if they were growing naturally in the ground. Ferns were used in combination with such terrestrials as *Phragmopodium* (*Selenipedium*), *Paphiopedilum* (*Cypripedium*), *Tainia*, *Habenaria*, etc.

The press has been highly complimentary upon this exhibition, giving it wide publicity. The January attendance has been greater than any previous year, five thousand visiting the show during the opening afternoon.

God's Best Berry

STRAWBERRY propagation in a private garden, whether the area be big or little, should be regarded as a business of importance. It is in the nature of a casual matter with the field grower. If the runners root, well and good; if they fail, well, better luck next time. We will leave the latter to his gambling wheel of fortune and consider the subject from the point of view of the gardener who, as far as is humanly possible, turns the wheel himself.

Three fundamental points are: 1, the plant from which the necessary runners shall be taken; 2, the type of runner which shall be chosen; and 3, the manner in which it shall be rooted. As a general rule the private cultivator has entire control over each of these though, in some circumstances, he may be forced to proceed as convenience, not as judgment, directs. The points may most usefully be dealt with as set out.

It is accepted that one year old plants will, in normal conditions, produce the finest runners or plantlets, especially, perhaps, those which have proved their power of fruiting by giving blossoms, but which have not been permitted to pass beyond that stage. There have been unnumbered controversies to decide whether runners from a barren plant (*i. e.*, one which has never developed a flower truss), will be similarly barren, but the issue has never been authoritatively reached. If there were no risk the question could never have come up for discussion. There is a risk and it is not worth taking. Therefore, the decision must be in favor of the fruitful parent, with the supplemental one of choosing one year old plants, if possible. Should these be, for any uncontrolled reason, unavailable, the second choice must be from two year old plants, and the third, and final, choice from three year old plants.

Apropos the runners themselves. The strigs are prolific in the production of plantlets, and propagation may be, consequently, carried to an intense degree, but this is more than doubtfully wise. Healthy plants in a clean plantation will send forth so many strigs that the requisite number of youngsters will be provided by the first or second plantlet, or, in the event of necessity, both. Should a desire be felt to split hairs, and decide whether the first or second plantlet is the better, the best advice that one can give is for each grower to please himself, since, judging from the broad basis, there is no perceptible difference in the final results.

Now as to manner of layering, which is one of the simplest forms of propagation. The strigs carrying the runners extend in all directions from the parent plants and many of these will attach themselves securely to the soil so that the species may be perpetuated. This is a natural method of increase and the gardener adopts it as the best, but wisely carries it out under a definite system. He selects the best suitable plants and the most promising plantlets and runs the process as in a set of harness. Three modes of procedure are popular, easy, certain, and all are based on the best plants, best runners principle.

The most common way, probably because it is the least trouble, and, incidentally, the worst, is to cleanse the alleys of weeds, attach the plantlets to the soil with small stones or pegs and await results. Undoubtedly better is to supplement the cleaning by surfacing with good mould, as this conduces to superior and quicker rooting. The chief disadvantage occurs when transplantation must be done in hot, dry weather. The soil falls from the roots in lifting and the plants may, consequently, sustain a check to progress. This may not be a substantial dis-

ability in general culture, but those who aspire to achieve the finest results regard it with suspicion and strive to avoid it.

The second and third methods are very closely akin and may be treated of in association. The one is to plunge 3-inch pots filled firmly with light compost in the soil, and the other is to substitute 3-inch squares of turf, grass side downwards, for the pots; plantlets to the necessary number are attached to the soil in the pots or to the inverted turves, as the case may be, and water is given as imperative to prevent total dryness. Each is excellent. The roots come rapidly and numerous, they are retained within a circumscribed area and moving to pots or open quarters can be done with the ball of soil and roots intact. There can, then, be no cessation of advance. Turves are preferable to pots for one important reason. If the move to fruiting pots or rows cannot be carried out at the correct moment—that is to say, when the young roots are working freely round the ball—matting commences against the cool, porous, impenetrable walls, the roots become hard and wiry in texture and growth is arrested after transference. The slight, undesirable check has been inflicted. With turves this cannot occur. The roots may go beyond the limits specially provided, but, passing into soil, do not change their character and the plants do not cease to advance, even momentarily, after removal.

A final word or two of insistence on the necessity of instant work and the subject must be left. Early rooted runners are invariably the best and giving, as they do, the grower power to proceed as he wishes with them, bring supreme satisfaction. Some gardeners have made big strides in the task, others have just started and many are waiting—for they know not what. To one and all it may be said: Proceed instantly, work rapidly and thoroughly to produce rooted plants ready for their fruiting quarters at the earliest possible moment.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 40)

Salisbury Plain. The moors are made up of a wet peat soil of a distinctly acid type, relatively poor in mineral salts. This of course is practically useless from an agricultural standpoint although it may have some value for pasturage and grazing purposes. On soil of this type we find *Calluna* and other Ericaceous plants in abundance associated with *Ulex Europæus*.

Many of the downs are also valueless from an agricultural standpoint, although some of them provide admirable pasturage for sheep. This because of the fact that the soil overlying the chalk is thin—in many cases it is only an inch or two deep—and in consequence is unable to support any strong growth of vegetation. The prevailing type of vegetation is distinctly calcicole in character, the flora differs from that of the moors and includes such plants as *Helianthemum Chamæcistus*, *Asperula cynanchica*, and various terrestrial orchids.

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Work for the Month in the Garden

SAMUEL GOLDING

BY this date all plans have been made. Stocks of necessary seeds, tools, fertilizers, spraying materials, and other sundries will soon be ordered; mowing machines overhauled so that there will be no delay to take advantage of prevailing conditions, when we can, with confidence, resume sowing. Although February may be regarded by many as too early, owing to lack of artificial heating arrangements, yet the longer days and brighter sunshine remind us that the gardening season has opened in earnest. Where abundant facilities are provided for growing early vegetables and flowers, no time should be lost. It is the aim and object of all growers to prolong the season when fresh vegetables can be obtained, and if one can produce them for the table even a few weeks earlier than they can be had from the open garden, they are always appreciated and are more than worth the extra labor involved.

The greenhouse, pits, and frames are the mediums through which we can achieve this desirable end, whether plants are grown in them to maturity, or whether they are merely used to give the plants a start, to be afterwards planted outside to finish their growth, thereby gaining much valuable time. Where space is limited, some caution is necessary in starting seedlings, unless it is that one particular crop is specialized in. Where many subjects are grown, the question of proper room for development becomes a vital problem. To insure success, one must always endeavor to keep the plants moving from the seedling stage to maturity, but the grower is governed by the local conditions which confront him.

If abundant fermenting materials for the hotbeds have been collected, and the pits filled as advised in the last issue of the CHRONICLE, they should be in perfect state for seeding and planting before February is passed. It is necessary when making up a bed to have in mind its particular function—if it is to raise a crop of beets, carrots, or cauliflower, which finish their growth where planted. These will require a steady and lasting heat which can be obtained by mixing a larger percentage of oak or beech leaves with the stable manure, and then covering this with a good compost, a depth of five to six inches. If the hotbed is made up solely for raising plants, then the bed should be covered with enough soil to absorb the rank ammonia fumes, and prevent damage to the tender seedlings from a too violent heat, which induces a rapid germination and possible damping off, if not very closely watched.

Sow batches of horn carrots, beets, lettuce, spinach, cauliflowers, cabbages, radishes, and small salads. Sow in pans or flats onions, leeks, tomatoes, egg plants, peppers, and celery for early work.

Continue to bring in successional batches of vegetables for forcing, which quickly respond to the influence of a little heat at this time. Their growth is very rapid if a humid, growing atmosphere is maintained.

Make up additional mushroom beds as the old ones show signs of exhaustion. Push on with any outside work whenever the climatic conditions permit. Finish up with all speed the pruning of fruit trees, and the Winter spraying of trees and shrubs. The San José scale is very partial to the lilac and it is advisable to keep a sharp look-

out for it. *Euonymus radican* growing on walls is often subject to attacks of this pest and should be sprayed as a preventive measure.

Give abundance of air, whenever it is possible, to plants wintering in the cold frames. Remove the sash on mild days; pick off all decayed foliage; keep the top soil loose about the planted stock by going over with a small cultivator. Have on hand a good supply of covering material in case of a spell of severe weather.

This is a splendid time to sow sweet pea seed, for the best results can be expected from seed sown now. Sow in pots or flats, and place in a frame; after the seed germinates, grow on as cool as possible, to develop strong, vigorous root action and sturdy plants for setting out when the ground is fit for their reception. Use fairly light soil in the flats so they can be easily shaken out with a minimum injury to the roots when planting season is here.

MARCH

The advent of March means busy days for the gardener. All available space under glass will be doing its maximum amount of service. A full line of vegetables and flowers may be started at once with every confidence of the ultimate results. In addition to the above mentioned varieties, dwarf peas and potatoes may be planted, and successions of the very early ones sown when necessary, so as to maintain a perfect supply. It is a most unsatisfactory state of affairs to have a glut at one period, to be followed by famine.

The raising of plants for Summer bedding will demand immediate attention. Propagate cuttings of geraniums, fuchsias, *lantana*, heliotrope, *colcus*, *ageratum*, and other stock on hand. Sow as early as you can, seeds of *Begonia gracilis* and *semperflorens*. As the seeds are very minute, they require a longer period to develop into good sized plants for bedding than the average annuals.

Sow *Salvia splendens*, *S. patens*, *S. azurea*, *S. farinacea* (while the last two are not really annuals, they thrive well if treated as such), *Browallia speciosa*, *Celosia plumosa*, in its varied forms. These are a few of the most important popular plants which take a longer period of growth before they can be used for ornamental purposes than do many other annuals. The average annual is a fairly rapid growing subject and one must be guided as to sowing by the probable date when their bloom will be desired. If successions are required, they should be started at the earliest opportunity. Many annuals do better when sown outside on the place where they are to bloom.

Seeds of Fall blooming perennials can be sown now, and they will make fine plants for setting out in the border during May. Seeds of Delphinium in variety should be sown soon to have bloom during the coming Summer. The seedlings of the hybrid types should be planted together in blocks as they have a wide range, and varied shades of coloring. When grown together, it is less difficult to select the more desirable ones as to color and type. They can be lifted the following season and planted in the flower garden; the one year old plants are most vigorous. Their wonderful spikes are one of the glories of the garden during the early Summer days.

The Greenhouse, Month to Month

W. R. FOWKES

MARCH is a busy month. The powerful rays of the sun make more demands on ventilation. Seedlings need to be watched and carefully shaded.

The pot fruit trees have arrived at an important period; peaches and nectarines being the leading fruits raised in pots. It is not prudent to try to grow cherries, plums and pears in the same compartment with the nectarines and peaches as they require much syringing to check red spider. The cherries, etc., ripen their fruit much earlier, and if they are syringed when showing color, they will crack and be ruined. With regard to the plums, if they are syringed when the fruit is ripening, much of the fruit will crack and the dense bloom will be destroyed. Hence the reason for separate compartments. The south, or warm end, should be used for the peaches and nectarines; the cooler partition for the cooler fruits which have been named.

As the fruit trees come into flower, give as much air as possible, avoiding cutting winds. Air is essential for the setting of their fruits. As there are no bees at hand, take a rabbit's tail, tied to the end of a cane, and at noon when the pollen is open and dry, gently tap each truss. Watch carefully the setting of the fruits, but do not try to hurry their progress with heat, as this would prove fatal. Fifty degrees at night must never be exceeded until after stoning is passed. When the fruit is set, syringing must be practised; do not use force to injure, and keep a humid atmosphere.

If grapes are grown in pots, they must be grown on the alternate system; by allowing the plants to do one year's work and then to have one year's rest.

The fig is one of the best of fruit trees for pot culture, although the culture of figs is not always attended with the success one might wish for. This often is due to the wrong methods employed. The fig, in the first place, has a tendency to strong growth. It is also a gross feeder and if unchecked and grown in too rank a soil, will be a barren tree. Grown in an intermediate temperature in the same soil which is used for peaches, it should thrive well.

Pruning must be performed with discretion. If a very strong shoot appears, it is better to cut it clean out than to prune it to two or three eyes. Pinching hardens the wood, thus making the tree more prolific. Therefore grow in fairly strong soil; get a medium texture of wood; pinch from the fourth leaf, and you will rarely be disappointed by having a useless fig tree.

Naturally a proper selection of suitable varieties adapted for forcing must be adhered to. It must not be imagined that all varieties are especially good for forcing, although most of the best and largest sorts in cultivation are suitable for that purpose. Any first class nurseryman whose advertisement appears in the CHRONICLE can supply them. Selections can be made from the following: Franco de Mel, Early Violet Negro Largo, Brown Turkey, Black Marseilles, Brown Ischia, Violet Sepor. Overcrowding and growing in too shady a position must be avoided, as well as too much fertilizer, as both help to encourage an unfruitful growth in fig trees.

Caladiums that have nicely started and are wanted for Summer work should be transferred from flats to pots. Use a little chopped sphagnum moss and sand in the loam,

and an inch of crocks. Keep pots close together in a warm, humid, partly shaded place for three weeks until the growth has started off well.

Tuberous begonias and the next batch of gloxinias should be placed in flats of moss and sand soil, and kept on the dry side. They will provide a succession of blooming plants that are needed when we are through with many of the Winter bulbous stock. Propagate Lorraine Begonia by leaves. Insert healthy leaf stems half their length in the sand, not allowing the foliage to come near the sand. Six weeks' time will complete the operation.

As we are crowded for space at this time of the year, some subjects can be grown suspended from the roof, without injuring any plants beneath them. We can procure pot hangers from reliable firms, which are light, yet strong enough to hold any kind of plant. E. T. McCarroll has suspended Farleyense ferns over orchids; also begonias and many other plants in five- to eight-inch pots. There are plants which we cannot always grow in wire baskets, and the pot hangers are certainly excellent for that purpose. Mr. McCarroll kindly informed me that he secured his from Joseph Manda Company and that they are a decided improvement on anything he had used before.

Roses are in need of more syringing, but as their wants are so generally understood, it is hardly necessary to devote more than a passing remark to them.

Wallflowers, *Keavensis*, come into their own now and are sweetly scented flowers that give promise of Spring.

Immerse the baskets containing *Oxalis* into a pail of soot water every week.

Bougainvillea and *Clerodendrons*, *Thompsonii*, are starting up nicely for Easter. These heat loving subjects must be gently syringed. They can be trained to any kind of support.

Aristoclochia Sturtevantii is an interesting plant to adorn the conservatory in Summer, and is easily raised from seed. It requires rather poor soil.

Sow a packet of *Grevillea robusta* and *Aralia Sieboldi*. They both make useful plants for Summer decoration and as they are biennials, they can be used indefinitely.

Sow also a packet of *Francoa ramosa*, known as the Bridal wreath. It has an advantage over many other useful plants in that dust and a certain amount of neglect seem to suit its nature.

Calanthes that have bloomed and have rested are starting out on their journey and the better method is to mix a light compost of peat, sphagnum moss, sand, a little mushroom manure, and loam that is fibrous. Place in three-inch pots and do not water until growth is active. A shelf near the glass in a warm spot, or underneath the tomato vines is another ideal place for them.

Now that the tomatoes are in full crop, instead of taking off-sets away cleanly, encourage a few of them to grow. When the crop is perfected, cut out the old, main stem and the new growths will be filled with bloom, and a fine crop attained. To succeed the others, grow the new "Golden Sunrise." It is a novelty, which has proved its worth.

If cannas are desired for flower beds this Summer, they should be started the end of March. Mix a light com-

(Continued on page 64)

A Garden of Blue Annuals Edged With White

FLORUM AMATOR

BLUE, the color of the sky, and the symbolic hue of hope, is especially delightful in a Summer garden, giving, as it does, a suggestion of grateful coolness in contrast to the Summer's heat. A garden of blue flowers, edged with white, produces a charming effect.

We have no very tall-growing, annual blue-flowered plants; therefore we will not be perplexed with arranging our beds of plants so that the taller will not shade the lower. However, our garden will be more attractive if we arrange to have the taller plants in the northern beds or borders of our garden.

Let us, therefore, in one of the northern beds, plant the rich dark-blue, and in another the exquisite azure-blue annual Lupines. Their pea-shaped flowers are lovely, and delightfully fragrant, and their foliage is beautiful. They may be planted in the open garden in May and thinned out when small to stand out ten inches apart each way. Lupines grow quickly and their cut blooms are excellent for table use. We may plant as an edging for these beds *Ageratum* ("Little Dorrit"), the white variety, sowing the seeds where the plants are to grow and thinning them when young to stand about three inches apart.

Within the last few years we are beginning to grow a little more freely in our American gardens that beautiful annual *Salpiglossis* ("Painted Tongue"). We should indeed have a bed of these of the orchid-flowered type of purple-violet color, and another of the light blue with veins of gold. The funnel-shaped flowers of *Salpiglossis* face upward and are exquisitely marked with veins of gold or silver. They produce a wealth of flowers, which are highly esteemed for cutting, from early Summer till frost. It is better, if convenient, to sow the seeds in fine soil in shallow wooden boxes, and place these in a sunny window of our dwelling house or in a conservatory or hot bed, and after frost is past to transplant the young plants, when of suitable size, into the garden bed about eight inches apart each way, but the seeds may be sown in May in a bed of finely prepared soil in the garden in very shallow drills eight inches apart, and the plants, when they are small may be thinned out so that those left will stand about eight inches apart in the rows. There is another and a better way of sowing all flower seeds directly in the garden where they are to grow, namely, make drills of such depth as the seeds require at a suitable distance apart; then make others crossing the first at right angles and at such a distance apart as you would like the plants to stand in the row. Plant two or three seeds at each point of intersection of the drills and when the plants are a few inches high, pull up at each intersection all the plants except the strongest. Suppose we edge our beds of *Salpiglossis* with the pretty, little white *Lobelia compacta*. We may sow the seeds indoors and transplant, or directly in the bed and thin out the plants to stand about three inches apart.

I think we would like beds of the two types of double blue annual Larkspurs, one of the Stock-flowered type of sky-blue color, and another of dark blue of this type, one of the Emperor type in either black-blue or violet and another in either light blue or azure blue. The Stock-flowered type bears its blooms in columnar or pyramidal spikes; the Emperor type has its inflorescence in candelabra form. Larkspur seeds should be sown directly in the garden beds in May, and, when large enough, thinned to stand about six to eight inches apart. The plants will begin to bloom in July, and continue to furnish an abundance of beautiful flowers, which are excellent for cut-

ting till frosts appear. *Alyssum* ("Little Gem") sown directly in the garden bed and thinned out to stand about three inches apart will make a very pretty edging for our Larkspur beds.

There is a beautiful lavender-blue variety of *Scabiosa* (Sweet Scabious) whose flowers are borne on long stems, and are very suitable for cutting, and are produced continuously from July until frosts come. *Scabiosa* seeds may be sown indoors in early Spring and the plants transplanted into the garden later, or in May sow directly in the garden beds. We will, I think, edge our *Scabiosa* bed with *Alyssum procumbens compactum*, commonly called "Carpet of Snow," sowing the seeds directly in the garden bed and thinning out the plants to stand a few inches apart, when they are small.

There is a new and greatly improved variety of that unique plant, *Nigella* ("Love-in-a-Mist"), named "Miss Jekyll." It grows about three feet high, and has lovely flowers of cornflower-blue nestling amid its pretty, feathery, green foliage, the position of the flowers as regards the foliage giving the plant its common name. *Nigella* is among the hardiest of annuals, and may be sown directly in the garden in the south in Autumn, and in the north in early Spring, or later in May. It should be thinned like other plants to stand a suitable distance apart. We never obtain the best blooms either as regards size or quality when the plants crowd each other. *Nigella* is especially useful in combination with other flowers in making up bouquets. We would like, I think, an edging of white *Lobelia compacta* for our *Nigella* bed.

Shall we not have a bed of that old time, floriferous, fuzzy flower, blue *Ageratum*, planning the variety, "Swanley Blue," because it grows tall enough for cutting, and edge our *Ageratum* bed with fragrant white Sweet *Alyssum*, that dear, old-fashioned variety which blooms till November snows begin to fall?

Browallia, commonly called "Amethyst" from the color of the flowers of some of its varieties, is too little grown. I think you would like a bed of this of the variety *speciosa major*. The beautiful ultramarine blue of its blooms, one of the rare colors in flowers, will certainly delight you. You will need a very dwarf plant for bordering your *Browallia* bed, and you can again plant *Alyssum* ("White Carpet").

Let us save the last bed in our flower garden for *Myosotis* ("Forget-me-not"), using the variety *semper-fluens* because it is a continuous bloomer, and also some of the much admired, large-flowered, new variety, "Ruth Fischer." Our Forget-me-not bed should have for a border a plant bearing a very small flower of somewhat the same form as that of the Forget-me-not, and I think we would like for this purpose *Alyssum* ("Little Gem").

There are a few other flowers which we might grow in our blue garden, such as *Centaureas* ("Cornflowers"), purple sandytuft, purple *Verbenas* and blue *Violas*, but, perhaps, what we have arranged for will be sufficient for the first lesson.

Of course you will follow the advice of Pliny, the Roman, in making your blue garden, namely, "Dig deep, manure well, work often." We have mentioned May as the time for planting the seeds of annuals, but they may also be planted in June, if the soil is kept moist while the seeds are germinating, and the plants from June seed sowing will bloom in middle or late Summer or in Autumn.

Plants of the Bible and Biblical Lands

FLOWERS pressed and sent home from time to time during the recent war as well as the sojourning of so many of our soldiers in "the far east" have brought Biblical lands very close to us, and it may be interesting to some to have their memories refreshed in regard to the living things that spring from the sacred soil of such lands as we find mentioned in Holy Writ. Anything connected with Palestine especially, whose hills and valleys Our Saviour trod and whose rocks re-echoed the very words He spoke, must have a vital interest for each one of us, and there is wonderment in the thought that our eyes can behold today the very same kinds of flowers and plants that perhaps He looked upon and drew lessons from in His teaching. For in the Holy Land, conditions have apparently changed very little if at all since Our Lord's time, and we find the same manners and customs prevailing today as those which were in vogue over three thousand years ago. In other countries as time sweeps on, fashions come and go and progress is made in different directions, but Palestine, Syria and the greater part of Egypt as well as the Sinaitic peninsula remain unchanged, one of the features which strikes the traveler most being the marvelous antiquity and uniformity of the customs. Not only do these remain the same but also the bulk of the language, together with the productions and great natural features of the country. The shepherd may lead his sheep in A.D. 1919 over the very hillsides frequented by the "Shepherd King." The traveler on his way may still pluck the ears of corn and allow his horse to feed in passing on the unenclosed crops of barley, or "eat his fill of grapes at his own pleasure," as he goes through the numerous vineyards, with the single stipulation that he puts none into a vessel to carry away. In regard to the wheat and barley this practice is easy and natural as these crops are easily cultivated in Syria and Egypt, extending for miles over the country in one unbroken line and in good seasons yielding an astounding return. As the seed is still sown broadcast, every bit of the ground being cultivated, the ideas of trespass and prohibition do not exist, in addition to which there is the instinctive hospitality of the Eastern. The vineyards are enclosed and carefully protected from the depredations of robbers and wild animals, yet this charter of "the stranger and the poor" as given in the law of Moses (Deuteronomy XXIII, 24 and 25) is still respected and observed. The greetings and farewells are identical with those in the time of Abraham, although a little of the significance and spirit may have passed out of them. Going through the country parts particularly, one notices the adherence to the ways and things of the past. From the south of Egypt to the extreme north of Syria, the plough used today is the same as that employed in the earliest times and of the same pattern everywhere. It just serves to scratch the soil to a depth of two or three inches. If harvests were not so plentiful and crops did not respond so readily as they do in those favored regions, a little progress might have been made in the construction of this and other farm implements. Everywhere the excellent coffee is served out of the same little handleless cup, unvarying in size and design, and at entertainments the host still rises and after girding himself with a towel, washes the feet of his guests. Immutability has been well said to be the law of the East.

To the Jews and Greeks we are indebted for the earliest allusions in writing to plants and flowers, the former in the books of the Old Testament, the latter through the

works of their poet, Homer. The Old Testament gives us the first account of a piece of ground being marked out and set aside for the culture of flowers, in its story of the Garden of Eden, supposed by some authorities to have been situated in Palestine. Later on we read of the "promised garden of Mahomet" and the far-famed hanging gardens of Babylon in which King Solomon, an enthusiastic gardener and botanist, took such keen delight.

Doubtless the eyes of the Jews of long ago were not closed to the beauty and significance of the lowly things of the earth—David's utterances in the Psalms show that he must have lived very close to them—and they probably had acquired much knowledge of plant life during the period of their wanderings before entering the promised land. They were thus well able to read the book of Nature, hence the constant use made of it in Holy Scripture to illustrate some precept or inculcate some moral truth.

Flowers occupied a prominent place on every Jewish festival, when they wished to show honor to distinguished persons. In the Apocrypha—Wisdom XI, 6—we have a reference to this lavish use of wreaths which runs as follows—"Come on therefore; let us enjoy the good things that are present; and let us speedily use the creatures like us in youth. Let us fill ourselves with costly wine and ointments; and let no flower of Spring pass by us: Let us crown ourselves with rosebuds before they are withered."

To understand the nature of the vegetation and the Biblical allusions it is necessary to bear in mind the physical features. Taking Palestine first, from north to south, we have a narrow tract of country nearly all parts of which, in spite of the existing mountains, reap benefit from the west wind which blows from the Mediterranean during the greater part of the year. The Arabs very appropriately call this wind "the father of rain," but during Summer and Autumn it only gets as far as making night mists which are soon dissipated by the morning sun. There is great diversity of surface in a small space and consequently a great variety of plant life. Going from west to east we have along the sea-coast a plain extending for about 10 miles inland. This is very fertile with the exception of its coastal edge which is marked by the presence of sand dunes. These seem to be encroaching inland and in places are quite wide.

Amongst the plants growing on the sand dunes are *Artemisia monosperma*, a species of wormwood, with a very strong scent and a bitter taste; *Atriplex portulacoides* (Sea Purslane); Sea Rocket, a cruciferous plant with fleshy leaves; numerous prickly members of the ubiquitous Daisy family, including *Cyanus Syriaca*, with its violet colored flowers; *Cynomorium coccinium* of which the name alone is enough to startle anybody, a curious leafless, red plant covered with scales and parasitic on the roots of others, especially those belonging to the family of *Chenopodiaceae*; Cotton weed, a herb clothed with dense grey wool; Squirting cucumber, of which some may like the botanical name—*Ecbalium elaterium*—with its thick prostrate stems, like long arms reaching out over the sand, rough leaves and small greenish gourds, startling the passer-by now and then by its explosive ejection of seeds; *Crambe maritima* (Sea-kale); *Jasmine officinale*, with its white sweet-scented flowers; *Reseda orientalis*; *Salicornia fruticosa* and *S. herbacea*, the latter leafless with spikes of flowers jointed like the stem; different species of tufted Grasses, which help to bind the sand together; *Thymelaea hirsuta*, a shrub

with minute fleshy leaves and small yellow flowers borne in clusters near the tips of the twigs; besides *Urginea maritima*, the bulbs of which are the "squills" used in medicine, and many others of more or less interest. It will be noticed that all are characterized by some provision having been made for the conservation of water either by a coating of hairs, thick fleshy leaves, or absence of leaves, or in some other way known to the plant dweller on the dune. Every bit of the plain is arable and as rain brought from the west falls from August right through Winter and Spring until the end of March, it is very suitable for wheat and similar crops. Every inch is under cultivation and in places like Jaffa, the modern Joppa, there are huge orange groves, with a few almond and fig orchards. Traveling through the plain in spring it presents a wonderful sight, with its large stretches of green wheat patched quite red here and there with anemones and later on with poppies of the most brilliant hue. On the inner edge the hills start and very soon get up to 1,000 feet above sea level, the height gradually increasing further inland to about 2,000 feet. They are cut by immense wadis or valleys running inland, which throw off branches, that in turn also branch. In any other country we might expect to find rivers speeding their way down these water courses but in the Spring of the year they are absolutely dry. However, the country as a whole does not suffer from lack of water owing to the existence of numerous springs and conservation by means of wells and rock cisterns or aqueducts.

Water is the most precious thing in the country, and of vital importance in those districts where springs and streams are rare. The bygone inhabitants set us an example by the way in which they recognized this fact, and took advantage of the periodic wet seasons to preserve as much of the precious liquid as possible, for use in times of drought. No labor, time, or expense, was spared in the pursuit of this object, and water saving was part of the scheme by which the desert—ever ready to devour—was kept from encroaching on their narrow strip of land. Josephus tells of an aqueduct 25 miles long which was made by Pontius Pilate, the governor of Judea, in order to bring water to Jerusalem, which had no natural supply in the shape of springs or streams. The engineers of that time must have had some difficulties; for the conveying pipes, which consisted of large blocks of stone bored through the centre, traveled in a direct line up and down the slopes of the mountains, and the amount of pressure required must have been considerable. Aqueducts are and always must have been common and familiar objects in the Holy Land. The pipes were generally made of earthenware laid in thick beds of cement, the latter largely formed of crushed pottery, which in course of time became as hard as stone. Sometimes passages for the water to flow were cut in grooves in the limestone of the hillsides; and in many places where no springs could be found, very rich sheiks have chiseled through rocks or drilled to depths of over 200 feet, in their efforts to find an artesian basin.

The irrigation systems along the valleys, through which the railway of today passes, are very ancient and date back to the beginning of things. The same streams are now used and the same methods applied for the directing and controlling of the water as prevailed in the time of Abraham. These old builders did their work so well that the pools, cisterns, and wells which they established still stand as monuments to their memory, and will be appreciated as long as that thirsty land exists. The beautiful temple of Solomon, with all its glory of pomegranate wreaths and cedar overlaid with gold, has vanished; but the three pools which he caused to be con-

structed with such care in the vicinity of Jerusalem, and filled with water, still remain, and are in constant use, forming the sole supply of the people of Bethlehem.—*South African Gardening and Country Life*.

A LESSON ON BEAUTIFYING HOME SURROUNDINGS

(Continued from page 48)

departure from a straight line is advisable, then there must be some appropriate planting placed in such a position, either before or after the drive or walk is made, so that it will be obvious that the curve was necessary to avoid the planting, or it may be some other object.

In constructing a drive through an extensive estate advantage should be taken of opportunities to obtain views of any points of interest in the surrounding country, and at the same time one should avoid, or hide, by suitable planting, any undesirable objects.

With small places the position of the house and drive require careful limited area. More can be made of a small lot by placing the house to one side of it than by placing it in the middle. In these days practically everyone has an automobile and a drive is necessary to reach the garage. This drive should be at the side, leaving five or six feet from the boundary for some planting, its subsequent direction depending upon the position of the service side of the house, etc. It is not advisable for the drive on a small place to proceed along the front of the house, as passengers can be deposited and taken on at the end of the verandah, along which they can reach the front door. This method entirely does away with any excuse for the existence of a walk running through the lawn, which is one of the most hideous features of the modern suburban home, especially when constructed of cement.

Such a drive should be entirely screened from the front lawn by suitable planting, and, with the elimination of the center walk, combined with planting on the other sides, a front lawn is then in the desirable condition of being unbroken and shut off from everything but the house.

According to the size of the place, subsidiary walks and drives have to be provided where such are necessary. Neither is artistic in itself. Every foot of walk or of drive is a trouble, an expense, and usually a distinct deduction from the beauty of a place. They should therefore be reduced to the smallest quantity that will fit the actual demands of the traffic about a place.

The least desirable form of garden walk is that constructed of cement. When a walk, other than grass is required in a garden, the least objectionable form to have is that composed of irregular shaped pieces of flat stone so laid as to be flush with the lawn—if it passes through one—the grass growing in the spaces between the stones can be cut with the lawn mower. These spaces may also have dwarf hardy plants growing in them when the walk is not through a lawn such as *Sedum acre* and *Thymus serpyllum*; when the latter is walked over a delightful perfume arises. Hard red brick, set on edge is from all points a better material than cement.

God Almighty first planted a garden. And, indeed, it is the greatest refreshment to the spirits of man; without which buildings and palaces are but gross handiwork; and a man shall ever see that when ages grow to civility and elegance, men come to build stately gardens sooner than to garden finely: as if gardening were the greater perfection.—*Bacon*.

Departments of Foreign Exchange and Book Reviews

THE AIR OF THE GARDEN

ONE of the most interesting features of gardening is the fact that it appeals to every faculty—most obviously to the sight, since form and color are generally the chief considerations in the selection and arrangement of plants, but none the less effectively to the others. It appeals to the ear in many ways, from the hum of the bees in the orchard to the call of the robin on a Winter's day. Even when the air is too calm to awake the rustle, the silence which falls is a positive influence rather than a mere absence of sound—the living silence of sleep, not the empty silence of lifeless surroundings. Its appeal to the taste is demonstrated fortnightly by the powers on whose lips the fate of new varieties of fruit depends. Its harsher effects may be experienced by anyone who will attempt to prune a *Berberis* with unprotected hands. Its most powerful influence, however, is exerted through the medium of the sense which, in the ordinary way, is regarded as of least importance—the sense of smell.

In everyday life the loss of this faculty would not be of serious consequence, but in gardening this is not so. A person who had the misfortune to lose both sight and hearing, but whose sense of smell remained keen, would not be entirely cut off from the pleasures of a garden provided he had previously acquired a store of memories which could be aroused by the ever-varying odors borne on the air during the course of a year.

The range of these is wonderful, and any strict classification of their varieties is at present impossible. Some are light, others are heavy; some are soothing, others refreshing; some, though not sweet, are vaguely pleasant, and others are frankly displeasing. The conditions controlling their production and effects—on insects as well as man—afford, like the question of autumn colors, a fascinating field for study, but, of the two, the subject of scents is the wider, since not only leaves but also flowers, fruit and even roots may be concerned in their production.

The strong influence of scent sometimes causes a conflict of ideas when the merits of a plant are being considered. Lack of scent may not tell heavily against a flower which, like many Roses, has beauty of form to atone for it, but it takes a great deal of outward attraction to outweigh an unpleasant odor. One cannot, however, establish a principle that no offender in this way should be permitted a place. The question of whether the odor is freely radiated or only given off at close quarters or when part of the plant is crushed must be taken into account. One can forgive *Lilium szowitzianum*, but a blow from the Crown Imperial stirs thoughts of banishment and the writer would give no quarter to *Phuopsis* (syn. *Crucianella*) *stylosa*.

Some perfumes are better at a distance than at close quarters, and of these the Giant Lily provides a good example. In the evening, when twilight deepens in the wood and all the air is still, a large group of these fine flowers makes its existence pleasant felt a considerable way off, but close to them, the scent is almost overpowering.

A scent should not be condemned solely on the evidence of its name. The fragrance of May-scented hedges in Spring need lose none of its pleasant associations because the chemist declares it to be due to the same substance as that which resides in "good red herring."

With the great number of sweetly scented plants which have long been known, it is natural that scented gardens should have been thought of and written about often enough. In many cases, however, they either represent a compromise between ornament and odor or else they give pride of place to herbs—those interesting aromatic plants around which hang so much history and romance. There is still room for the application of this purpose of the principle which guides the purely ornamental disposal of flowers.

The arrangement of color schemes which shall afford harmonious combinations over as long a period as possible requires taste, judgment and a knowledge of the plants employed. Still greater scope for originality and individual expression lies in the arrangement of plants to produce pleasantly blended scents through as much of the year as possible and changing with each turn of the weather-vane. "Awake, O north wind and come, thou south; blow upon my garden that the spices thereof may flow forth." That, even in this country, something could be done toward the realization of such an ideal is shown by the number of plants there are to draw upon if scent is the only requirement. Shrubs

and herbs, annual and perennial flowers, would all be included so long as their odor was radiated.

The subject is a big one, but its complexity is one of its attractions. Among the points to consider would be not only the nature and amount of ground available, but also the relative strengths of the scents of different plants, the time of day or year at which they were given off and the effect of mingling two or more. It is a blend, not a mere mixture, that is desirable, for, if we accept the theory that scents are conveyed to our perception by vibration, it is easy to understand that, like color or sound, they are liable to discord. It is not the odor within the sun-baked tents at Chelsea that attracts the crowds.

Among the host of applicants which spring up before the mind's eye at the call for examples, it is pleasing to see many with the record of generations of worthy service behind them. Far be it from modern gardening to scorn the flowers of the past and lavish all its favors on foreign immigrants, however distinguished these may be in certain directions. We accept, therefore, such names as those of the Wallflower, *Mezereum*, Rose and Sweet Briar, Lily of the Valley, Mock Orange, Mignonette, Lavender and Thyme—to mention only a few. Lest, however, it be thought that none of the newer introductions can hold their own with these, we would include that sweetest of shrubs, *Viburnum Carlesii*.

One of the best scent-diffusers in Spring is the evergreen shrub, *Azara microphylla*, the inconspicuous flowers of which emit a strong odor of vanilla. In September a strong and pleasant scent is given off by the handsome yellow fruits of *Cydonia Sargentii*, a dwarf shrub of great merit, also for its flowers in Spring.

The names mentioned form but a small proportion of the possible total, but indicate that provision for scent would not entail sacrifice of sight. Evergreen foliage and beautiful flowers would come in by the way and add charm to the fount of natural perfume. The emphasis is laid on the word "natural" lest some enterprising manufacturer should be encouraged to try to popularize spraying by adding synthetic perfumes to his proprietary mixtures. If that occurred one would feel disposed to exclaim: "O what a fall was there, my countrymen!"—*The Garden*.

PROTECTING BUSH FRUIT FROM BIRDS

LAST Winter my Gooseberry and Currant bushes (not black) suffered badly from the depredations of birds, which stripped the buds off wholesale, and not content with attacking these, did a lot of damage also to the buds of Plums and Damsons. It was late before I noticed what they had been up to, and I intend being before them this Winter. Any necessary pruning will be done immediately the leaves are off, and then the bushes will be protected with black cotton, which as far as my experience goes is the most effective agent for keeping the birds at bay. I put four or five sticks around each bush, and thread the cotton from stick to stick round and across, and the operation is very simple and soon done. It needs to be taken quite near to the soil, as the birds often hop along the ground to the bush, if it be a Gooseberry. In the case of larger bushes and Plums, the cotton can be fastened from twig to twig, and if the bush be too high to reach, the reel of cotton can be thrown across from side to side, so that a number of threads criss-crossing over the bush are soon in position, with a little trouble, and it is astonishing how effective a few such threads are. It is most disappointing when the bushes had a good show of fruit buds for the next season, to go down one day and find the branches stripped bare, every bud picked out, as is often the case where the bushes are unprotected.

When pruning Gooseberries I like to cut out all drooping branches, as well as all those which cross, and leave the bush well open, instead of the thicket into which old bushes are so often allowed to develop. Not only does one get larger fruit from a well-pruned bush, but it has a much better flavor from having been exposed to the beneficial influence of the sun—to say nothing of the added comfort in gathering. Sawfly larvae having been numerous this past year, it will be a wise precaution to remove the top two or three inches of soil from under Gooseberry and Currant bushes (taking care not to injure the root), and bury it deeply, replacing it with good soil from another part. Not only will this do much to keep off the pest, but the bushes will benefit from the new soil. *Gardening Illustrated*.

HORTICULTURE IN HOLLAND

THE "Dutch Number" issued by the London *Times* on December 6, gives an admirable and complete picture of life in the Netherlands and of the industries in which the Dutch excel. The fact that the article on horticulture—under the picturesque title of "The Garden of Europe"—is by Mr. Ernst H. Krelage, the vice-president of the Netherlands Horticultural Federation, is a guarantee of its excellence, and if that article be read in connection with others in the number on the constitution of Holland and on the agriculture of the Netherlands, it becomes easy to understand why horticulture in Holland has reached such an important position. Four causes would appear to have contributed to this result, the first, and doubtless the most important, is the natural bent of the people. The addition of Dutchmen to horticultural pursuits is of no modern origin. In the middle ages, as Mr. Krelage observes, they were already famous for their skill in horticulture. During the fifteenth and sixteenth century, migrants from the Netherlands established themselves in Denmark and in this country and engrafted on the stock of local practice their specialized knowledge of horticulture. Indeed, Mr. Krelage makes the interesting observation that the horticulture of Guernsey owed its origin to the enterprise of Dutch settlers in that island. Natural proclivity and industry would thus seem to constitute the prime cause of the success which Dutchmen have achieved in the practice of horticulture. Side by side with these gifts go also those of aptitude for business and readiness in combination. Second among these causes is the instinct for or habit of specialization which characterizes both Dutch farmers and Dutch horticulturists. This specialization is seen in the localization of special forms of horticulture in special regions. Centering round Aalsmeer are the floral farms. The neighborhood of Haarlem is famous for bulb cultivation; Beverwijk is a great Strawberry growing center. The provinces of north and south Holland are the great vegetable growing districts in which are produced vast quantities of early potatoes, broccoli, cabbage, carrots, peas, beans, etc. To this form of cultivation some 62,000 acres are devoted. Fruit growing, which absorbs an equal area, is more generally distributed. The trees and shrub-raising industry is carried on in such centers as Boskoop, Naarden and Oudendbosch. Specialization in distribution, no less than in production is a characteristic of Dutch horticulture, and in illustration of this fact Mr. Krelage points out that in pre-war days the cut flowers of Aalsmeer, the island village near Amsterdam, were exported daily not only to the British, German and other neighboring markets, but also so far afield as St. Petersburg and Constantinople. The area under bulbs is about 10,000 acres, and the exports in previous years reached the enormous figures of 25,000 tons, valued, according to Mr. Krelage, at one and a half million pounds sterling. The third cause of the excellence of Dutch horticulture is to be traced to the excellent system of horticultural education which is in vogue in Holland and the excellence of that system derives to no inconsiderable extent from the curiously decentralized constitution of the country. As a result of this large measure of local government the central authority does not loom too large in education, but each district has the power of determining the kind of horticultural education which it shall receive. As consequences of this partial decentralization, local interest in horticultural education is stimulated and at the same time the excellent system of State prevention of plant diseases is rendered possible. Last, and by means least, among the causes which have led to the great success of Dutch horticulture, is the quality of the soil. Soil and climate—no less than the industry and skill of the people—enable the Dutch growers to cultivate with success, not only the more easily grown bulbs such as Narcissus, but also such difficult subjects as the Hyacinth. As a consequence of Dutch horticultural industry and of other forms of intensive farming, this small country, one-ninth the size of Great Britain and Ireland, supports a population of 212 persons per square mile as compared with 144 in the United Kingdom. Without mineral resources, compelled to import coal and also food-stuffs for man and cattle, Holland, nevertheless, continues to maintain a population larger in relation to its area than that of any other country in Europe, except Belgium. Nor is the industry of the Dutch content with the cultivation of the land which is already available; it extends also to great schemes for reclaiming yet more land from the sea and at the present time a project is on foot which, when completed, will add a new and fertile province to Holland. By constructing a system of dykes in the Zuider Zee it is expected that 500,000 new acres of rich loamy land will be reclaimed.—*The Gardeners' Chronicle* (British).

THE PRUNING OF ESPALIERS AND WALL TREES

IT is, and long has been, the practice to treat wall trees and espaliers in a way which cannot very well be described by another word, than "barbarous." Many operators with knives or with secateurs use these implements upon the trees with which they are dealing as if they were dressing a Thorn hedge. Every

shoot is rigidly cut back to an undeviating length, and when the work is completed the pruner looks complacently on the mutilated trees and congratulates himself upon the neat and tidy result of his attention. Neat and tidy it may be, but it is an entirely unnatural process. This continual cutting is a constant fight with Nature; and when Nature is persistently curbed or checked she has her own methods of exacting retribution. The continued repression of any fruit-tree inevitably leads to infertility, or, at least, to light and indifferent crops. It may—nay, it does—result in canker and in disease. If, when there is room, this pinching and pruning were dispensed with, and trees were permitted to grow freely, not only would the crops be surer year by year, but the productiveness of the trees would last for a longer period. Regular and moderately heavy crops would balance the tree, and prunings would practically cease to be necessary. No doubt at times there might be occasional over-exuberant shoots, but if these were taken in time and pinched back, the sap would be diverted to other portions of the tree where it would be of more service. Further, the act of pinching would cause the strong shoot to break most likely into two, and this in itself would prevent or at the least discourage grossness.

It cannot be denied that there is a great lack of thought in the method usually adopted in dealing with wall trees and espaliers. At first, certainly, it is not wise to let a tree, which must ultimately be restricted to a given space, grow away too freely. The branches ought to be formed by degrees, and this ensures a uniform number of young growths—afterwards the fruit-bearing spurs—along their entire length. Bare spaces among the branches can never afterwards be filled—at all events, filled satisfactorily—but when spurs are too thickly disposed along the branches it is quite an easy matter to reduce their numbers. Thinning the spurs may, indeed, become necessary in order that those retained may receive sufficient light and air. Not only so, but when spurs are too thick both air and light are prevented from reaching the main branches, and these require both, equally with the spurs.

It is all very well for the advocates of close pruning to point to the fine fruits which are produced under their system of training—or, rather, of pruning. Even they, however, will not deny that these fine fruits are few in number, and that year in, year out, their trees do not bear even these few fruits consistently. It is not a matter of conjecture, but has been proved, that a tree planted, say, six or eight years, and given its head, will bear treble the fruit that an espalier planted at the same time and rigidly pruned will do. It is one of the signs of the times that this fact is now being generally recognized, and the oncoming generation of gardeners will, I feel sure, use the knife with more caution and with greater thoughtfulness than we their predecessors have done.—*Gardening Illustrated*.

PLANT FERTILIZATION FROM THE AIR

THE subject of manuring crops or plants is always interesting to the horticulturist, amateur or professional. Those of us who can look back half a century have noted the rapid strides that have been made in the science of supplying to each crop or plant the exact chemical that is most needed for its growth and structure, but this has hitherto always been accomplished through the roots.

Organic manure is unlikely to be superseded as a base, for it supplies the humus in the soil, the disintegrated product of decomposed straw, leaves and vegetable refuse. So far chemistry has not produced any synthetic equivalent for this, so that its value remains unimpaired.

The air is, we know, very rich in nitrogen, but it cannot in its gaseous state be absorbed by the plant. A small portion is, by the agency of rain and moisture in the air, converted into ammonia in the soil and is quickly seized upon by the roots of plants.

Carbonic acid gas, always present in our air, can be, and is, absorbed and broken up above ground by the plant itself. The green leaves of plants are in themselves a wonderful laboratory wherein the chemical reaction takes place, the carbon being absorbed by and into the structure of the plant, while the oxygen is liberated, and it is of this wonderful process of collecting materials from the air that I wish to speak.

The normal quantity of carbonic acid gas or carbon dioxide in the air is somewhere about 0.03 per cent, a minute quantity, and yet if this is much exceeded the effect on animal life is disastrous and a large quantity is absolutely fatal. It appears, however, from experiments that plant life will thrive and flourish luxuriantly in an atmosphere impregnated with five or six times the normal quantity.

As far back as 1902, Messrs. Brown and Escombe published a paper giving the results of experiments in using carbonic acid gas on growing plants by raising the content of the carbonic acid in the air of the glasshouse to 11½ parts per 10,000, but the results were not satisfactory. There is no mention of the gas being purified, so that impurities present in the gas would account for the misleading results.

Late Demoussy also made experiments with an increased amount of carbonic acid in the air, and found that of sixteen different kinds of plants grown in a mixture of 15 parts carbonic acid in 10,000, all except one showed improved condition to an average value of 40 per cent.

Experiments by Kisselew, where the gas was purified and the carbonic acid content raised to 17 parts per 10,000, the plants so treated, as compared with the controls, showed thicker stems, denser foliage, larger flowers, earlier flowering and increased weight, while the species of plant that failed to respond to the Demoussy treatment was no exception to the general improvement.

I have just had the pleasure of a long conversation with a friend who has been permitted to inspect these last experiments, although I believe at the place I have in mind the experimental stage is passed and the process of "gassing" plants is being put into commercial use in a most satisfactory way. Certainly, if all he tells me is true—and there appears no reason to doubt—the results are not only extremely interesting, but of the highest value both for private and commercial work.

Briefly, the process of fertilizing plants from the air and increasing the crop from 150 to 300 per cent, as is claimed, consists of purifying carbon di-oxide as it comes from the greenhouse fire or stove, lighting for the purpose, and passing it, after purification, into the glasshouse by means of a perforated pipe. The plants readily absorb the gas and respond with increased leaf, fruit and flower.

As carbon di-oxide is a waste product and is belched forth in millions of cubic feet from a multitude of chimney stacks; as, moreover, the purification is, I understand, a simple and inexpensive matter, there seems a great opening for the development of this process. My friend tells me, in addition, that where the gas is used in glasshouses no insect life survives, the plants are fumigated as well as fertilized.

Carbon di-oxide being so much heavier than air, the process can be carried on quite well outdoors. The gas falls to the ground and is carried slowly among the crop.

The experiments have not, unfortunately, been carried out in this country, but now that the results are known and vouched for, there should be no hesitation in applying tests to demonstrate that crops and plants will live and thrive and yield greatly increased crops in an atmosphere that is impregnated with large quantities of carbonic acid gas, a waste product that can be had for nothing but the cost of purification and delivery.

I understand that the matter is being laid before some of our big commercial firms and various research stations throughout the country. At the same time, if some enterprising amateur would install the process and allow its practical working to be thoroughly tested much good might accrue, as in times of trade depression every ounce of help is valuable. It would indeed be an achievement if by means of a waste product the yield of glasshouse or garden could be largely increased and at the same time the air we breathe kept free from a harmful gas liberated by every fire that burns.—*The Garden*.

THE HEPATICAS

BEAUTIFUL Spring flowers in the mountains, copses, and woodlands of North America and some parts of Europe, though not of the British Isles, these are treasures with which to adorn our gardens. Heraldic of the days that are to come, their charming flowers appear with the advent of the New Year, gradually increasing in numbers until the end of March, when they reach the zenith of their beauty. The Hepatica loves a loose, moist, leafy soil, such as the decayed matter found in the ditches of old woodlands, and a site screened from bright sunshine, such as is provided by Summer-leaving trees or the shade of a wall, evergreen trees being too heavy and dense. Given these conditions, the plants will not only flower profusely but will seed freely. The favorite haunt of the Hepatica appears to be the southern Oak woods of the Alps, where it is protected from the glare of the sun. It is also said to be one of the mountain plants that creep nearest the Mediterranean wherever the hills approach the sea. I grow them at the foot of easterly walls and beneath thinly furnished pergolas, positions in which the roots are cool and protected from direct sunshine. Under these conditions they have grown into large clumps, a single plant producing hundreds of flowers. The soil being heavy, much sand, grit, and leaf soil were added when the plantations were made. After a number of years, some of the later plants bore signs of exhaustion, and I find it necessary to lift and divide them, this being done in early Autumn. Although blue, lilac, and purple-flowered varieties predominate, we have white, both single and double, pink, and deep rose, all single and double, all producing a charming effect, whether in the shaded border, cool rock garden, or other position suitable to their requirements.

On cold and damp soils the Hepatica loses its leaves in Winter, whereas in well-drained soils the leaves are to a considerable extent retained. In order to keep them cool in Summer, I place

flat stones about the plants. A prettier way is to plant dwarf Sedums and Rockfoils among them, as these add additional charm. The first and most important point in the culture of these exquisite harbingers of Spring is to find the site and soil most suitable to their requirements. This should be fairly deep, as these little plants are deep rooters, well drained, and with which has been incorporated a goodly quantity of grit and decayed leaf-mould, among which the masses of roots may ramify freely, and in which the plants may remain undisturbed for a number of years. Scatter thin top-dressing of soil over them each Winter when the leaves of overhead trees have fallen. The leaves thus buried will then become excellent material for the plants to feed upon. It is remarkable the quantities of flowers a single clump will produce, and this at a time when the majority of plants are at rest.

Raising from seed is very interesting, as by this method one is never quite sure as to what the result will be. This element of uncertainty is, therefore, very fascinating, and we look forward to new and various color shades. The seed should be sown as soon as ripe in boxes of sandy soil, placed in a cool, shaded frame, or even in the open air, with a slate over it to keep down moisture. Some of the seeds will be found to germinate early, whereas others will not do so until the following Spring, when the seedlings should be pricked off singly into good soil and grown on freely.

The Great Hepatica (*Anemone Hepatica angulosa*), from the hills of Transylvania, is a strong-growing plant, from 6 inches to 10 inches in height, and is the first to bloom, the lovely sky-blue flowers being as large as a crown piece. This handsome species spreads by means of long underground stems, and has large, pale green, five-lobed, woolly leaves. It is a very beautiful and choice plant, which with me, however, takes longer to become established than the common Hepatica. *A. H. angulosa atrocarula grandiflora* is an improved form of the Great Hepatica, with flowers of deep purple-blue. These are larger than those of the type, and the plant is more vigorous.

A. H. angulosa lilacina is a charming plant, with pale lilac flowers, the broad petals overlapping. It is also said to flower earlier than the type in some parts, but with me this is not so. *A. H. angulosa alba* produces large single white flowers, and should be included in every collection.

The common Hepatica (*A. H. triloba*) is less vigorous than the Great Hepatica, rarely reaching more than 10 inches in height. There are several varieties of this, but, to me, the type is the most beautiful of them all. The single flowers are produced in the wildest profusion upon mature plants, these varying in color from pale lavender to sky-blue, each little plant a cushion of bloom. It is nothing unusual for a single plant to produce over a hundred blooms at one time, each crowned with a tuft of white anthers; their effect when grouped in large numbers is both striking and superb. I grow hundreds of these plants and their amazing beauty each year as this sea of blue arises above the cushions of unfurling leaves is one of surpassing charm. *A. H. triloba alba* is a pretty and welcome plant. The numerous anthers, being of a bright reddish color, form a pleasing contrast to the whiteness of the petals. There is also a double white form of this which is attractive, but at present rather a scarce plant.—*Gardening Illustrated*.

THE LATE JUDGE MAREAN

(Continued from page 43)

And now that the last wonder has been wrought, the tools laid aside, there is solace in the thought that in great and little gardens throughout the land the beauteous flowers, called into being by his love and skill and prepared for the future development, will bud and unfold, like the page of an immortal book, carrying his name down the years in honor and affection, thankful for his loving foresight to carefully arrange for the continuation of his great work, following his principles in every way.

And even the earth will hold him tenderly who wrought it to such noble ends.

To the family of Judge Marean we extend our tenderest sympathy. Their mourning is widely shared, for the gentle philosopher of "Daybreak" counted his friends among all classes, and his unfailing kindness to all who sought his advice or laid claim upon his time will not soon be forgotten.

Sunshine was he in the Winter day:

And in the mid-Summer coolness and shade.

JOHN SCHEEPERS.

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Boston, Mass.: Robert Cameron, chairman.

CLEVELAND CONFERENCE POSTPONED

The proposed gardeners' conference to be held in Cleveland during the National Flower Show has been postponed because of the unfortunate condition of not being able to use the new city building on the dates planned, and the necessary removal of the show from Cleveland to another city. Indianapolis has been selected as the city for the show. The sudden change has naturally upset all plans of the garden fraternity, but the hope has been expressed that an opportunity will soon present itself when a gardeners' conference, under the auspices of the members of the association located in and near Cleveland can be held.

OPENINGS FOR APPRENTICES

The Secretary's office has quite a number of applications from young men in different parts of the country who are eager to take up the work of gardening as apprentices. These young men have had a fairly good education—grammar school and one or two years of high school. Some have had no practical experience in gardening, but others have spent Summers in gaining a little knowledge of gardening. All express a desire to take up this work as their life's profession, and the Secretary

would be glad to learn of any one who can accommodate one or more of these young men as apprentices.

BOOST YOUR ASSOCIATION

Won't you help our association by talking of it among the gardening fraternity in your locality? From time to time recently, the Secretary's office has had more than the usual number of visits from gardeners who remark that while they had lived in such and such a place for some time they had only just learned of the existence of the association.

In your neighborhood there are surely gardeners who would be interested in the association if some one called their attention to it. When you meet a gardener who is not familiar with the N. A. G. tell him of its purposes, and endeavor to enroll him as a member. Increased membership means increased co-operation among the gardeners in this country, and it is only through co-operation that the association can carry out its aims.

JOSIAH TAYLOR MAREAN

Horticulture has sustained a distinct and grievous loss in the passing away at the age of 79, of ex-Supreme Court Justice Josiah T. Marean, of Brooklyn, N. Y., and Greens Farms, Connecticut. He died on Wednesday, February 8th, at Winter Park, Fla.

The burial services were conducted from the First Presbyterian Church, Brooklyn, N. Y., on Monday, February 13th. A large number of Supreme Court Judges were in attendance as pall bearers including the following: Abel E. Blackmar, Presiding Judge of the Appellate Div.; William J. Kelley, David F. Manning, Edward Lazansky, Norman S. Dike, Almet F. Jenks, Augustus Van Wyck, Lester W. Clark, Edward B. Thomas, Martin W. Littleton, James Shevlin, John E. McCooley, James D. Sessenvren, Stephen S. Baldwin.

JAMES C. GARDINER

The Secretary has been requested to make mention of the death of James C. Gardiner on December 23, last. At the time of his passing away, Mr. Gardiner was superintendent of Millcrest Farm, Gibsonia, Pa. Mr. Gardiner was well known in Sewickley where he had been employed as head gardener for nine years on the G. H. Singer estate.

AMONG THE GARDENERS

The Secretary has received a letter from Charles R. Waugh of Santa Barbara, Cal., announcing his return from an enjoyable trip to Scotland, and expressing the keen interest he had in the New York convention.

Mrs. John Scheepers, after a severe illness of more than two months, is now slowly gaining on the road to recovery.

THE ASSOCIATION AT THE NEW YORK SPRING FLOWER SHOW

The National Association of Gardeners has again taken space at the New York Spring Flower Show, which will be held at the Grand Central Palace, March 13 to 19. The publicity which came to the association through its booth at last year's show made it worth while to engage space again, especially so as the estate owners themselves are actively interested in the success of the International Show for 1922. The same desirable location which the association occupied last year was secured again.

Throughout the entire show the booth will be open to receive estate owners and others who are in any way interested in the profession of gardening, and in the activities of its national organization. Those in charge will be glad to give information on any subject relating to the gardening profession and to the employment of trustworthy, reliable and efficient gardeners.

INTERNATIONAL FLOWER SHOW

New York, March 13-19

NATIONAL FLOWER SHOW

Indianapolis, March 25-April 1

LOCAL SOCIETIES

NASSAU CO. HORT. SOCIETY.

The monthly meeting of this society was held on February 8 in Pembroke Hall, Glen Cove, L. I.

President William Milstead occupied the chair. A petition for active membership was received from Andrew Johnson of Roslyn. Frank Watson, Thomas Meeth and Thomas Scott judged the exhibits and their decisions were as follows: 6 tomatoes, 1st, J. C. Bowler; pot of *Pemala Maltwoodii*, 1st, James McCarthy; a vase of sweet pea "Rose Queen" exhibited by Peter Smith was awarded a Cultural Certificate.

Exhibits for March 8 meeting will be 12 mixed roses, pot or pan of tulips, and 12 carnations.

ARTHUR COOK,
Cor. Sec'y.

CLEVELAND HORT. SOCIETY.

The regular meeting of this society was held February 9.

The failure of the National Spring Flower Show to be held in Cleveland was the main discussion and the inconvenience it was putting the gardeners to. It was decided to hold a small exhibit among members, with a little entertainment the latter part of March.

There were two beautiful specimens of white cyclamen, plants that had been held over from last year, in 8-inch pots, exhibited by R. P. Brydon, for which he received a Certificate of Merit. He also exhibited some very well-grown, colored freesias for which a Cultural Certificate was awarded. A pot of *Agathaea (Feliccia) celestis*, exhibited by L. B. Webb, was very well grown, and received a Cultural Certificate.

C. Irish, a prominent Cleveland arborist, gave an interesting talk on spraying which was greatly appreciated by members.

ST. LOUIS ASSOCIATION OF GARDENERS.

The January meeting of the above association was held at the Forest Park Greenhouses on January 4. After a short business session, the evening was given over to general jollification and exchange of ideas among those present, the object being to give the members a chance of becoming better acquainted and to advance good fellowship. The evening was thoroughly enjoyed by all present.

The February meeting was also held at the Forest Park Greenhouses on February 1. At this occasion A. Vandereem of the Westover Nursery Co. delivered an address on "Modern Nursery Practice." Mr. Vandereem covered his subject very fully and his remarks led to an extensive discussion on propagation and growing of young nursery stock. It also led some of those present to relate interesting and amusing experiences of their apprenticeship both in Europe and America.

L. P. JENSEN, Cor. Sec'y.

TARRYTOWN HORT. SOCIETY

The regular monthly meeting of the above society was held in Masonic Hall, January 18th, with Pres. Wilson and a large delegation of members present.

The President of the society, Mr. J. P. Wilson, gave a most interesting and instructive talk on the cultivation of *Impatiens Sultan*. Among the other many good exhibits, noteworthy of mention, was an extra fine vase of carnation "Belle Washburn," staged by Wm. Graham. Horace B. Reed, manager of Fruit Farm, Conyers Manor, Conn., delivered a very instructive

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and educational lecture on the spraying, pruning and diseases of fruit trees, and drew additional interest by having brought various specimens of diseased fruit and branches of trees, all of which elicited considerable discussion, and upon conclusion, a rising vote of thanks was tendered Mr. Reed.

W. G. WESTON,
Rep. Sec'y.

UNEMPLOYMENT AND HORTICULTURE

The reaction of the public schools throughout the nation to Mr. Herbert Hoover's request that they do their share towards relieving unemployment was remarkable indeed. The schools were asked to consider the problem of unemployment from two different angles; first, immediate relief, and second, permanent relief. The first could be touched upon by the building programs throughout the country; increased building of schools would employ thousands more men. The second is a matter of education; it means that courses dealing with current events, economic and social problems will have to bring special light to bear upon the problems of employment.

In this connection it is somewhat heartening to feel that the nature of some of the courses given in Cleveland schools lends itself to the solution of the unemployment problem. Horticulture is a profession which has drawn upon Europe for its supply of trained men for some time. The field is calling for a great number of American young men and women. They must be trained in the public schools if a high standard, dignity and *esprit de corps* are to be maintained. Greenhouses—school greenhouses—is a very definite answer to Mr. Hoover's request. This means immediate relief for some in the construction of new and much-needed greenhouses. Then, too, as they become acquainted with greenhouse work, they are guaranteed pay for out-of-school time, thus helping out the family budget. It means a step in the direction of permanent relief in that students are trained in school greenhouses to cope with economic and social conditions through actual experiences in labor-cost problems, food production, home beautification.—*Nature Garden Weekly*.

WINTER PROTECTION OF EVER-GREENS

The recent snowfall—the first of the season—weighing down as it did many evergreens, should serve as a reminder to tie up and protect such specimens as require this treatment against breakage which may occur any time throughout the Winter when the elements may be less lenient than during the past storm. Snow alone may not cause serious injury, but when accompanied by sleet, followed by continued cold weather, as was the case two years ago, more or less breakage to plants is bound to happen.

Take Hybrid Rhododendrons, for instance, where every six inches in height count and in which weak growths abound, it pays to have these reinforced with raffia or light rope or possibly sheltered lightly with corn fodder. Such plants as the *Biota orientalis*, some Junipers and Cedars, which are inclined to develop double or triple leaders, should be tied in loosely to keep them together, especially if plants are large and their disfigurement would mean a real loss. This tying in is also beneficial from a cultural standpoint for it encourages a more compact growth.

The Retinisporas will catch and hold more snow than the Spruce, Fir and Pine class and so should be protected, if large or

Some Interesting Novelties in Trees, Shrubs, Small Fruits, etc.

through the
Arnold Arboretum
from China and Japan

Elscholtzia Stauntoni, Heather Mint. In September a mass of pale lavender flowers all buzzing with bees. Mint family, 2' high, \$1.00 each.

Evodia hupehense. A Linden like tree from China. 11' high, \$1.50 each; \$10.00 per 10.

Halesia carolina monticola. Grows as a straight tree, 80' high, but a many stemmed bush-shaped tree like the others. 3' high, \$2.00 each.

Juniperus littoralis. Used by the Japanese for holding sand dunes. \$1.00 each, \$7.50 per 10.

Malus Arnoldiana. White flowers, deep red cherry sized fruit that tastes as good as cider when frozen and decayed. 4' high, \$1.50 each; \$10.00 per 10.

Morus acidosa. A bird feeding plant. Most people consider the mulberries too sweet. This one may suit. 3' high, \$1.00 each; \$7.50 per 10.

Philadelphus magdalenae. One of the new Philadelphus. 5' high, \$1.00 each; \$7.50 per 10.

Rosa Hoguei, Father Hugo's Rose. A welcome addition to the shrubs. Big, round bush of healthy foliage with bright yellow flowers similar to, but earlier than, the Persian Yellow. \$2.50 each; \$22.50 per 10.

Sorbaria arborea glabrata. Vigorous shrub with white panicles in mid-summer, almost as showy as Hydrangea paniculata grandiflora. 3' high, \$1.50 each.

Styrax obassia. Chas. A. Dana's Arboretum has the only large specimen we know of. It is an old tree 14' high with circular leaves; racemes of orange, bell-shaped flowers in May and coffee-like fruit. 2' high, \$1.00 each.

Cotoneasters. Rare and beautiful group. Some suitable as low plants for the rock garden; others as taller shrubs in the background. You can show off a collection of these all winter. Some cling to the rocks with graceful sprays of evergreen foliage and coral berries.

C. Zabelii. 2' high, \$1.50 each; \$10.00 per 10.
C. divaricata. 2-3' high, \$1.00 each; \$7.50 per 10.
C. Dicksiana. 2-3' high, \$1.00 each; \$7.50 per 10.
C. floribunda bullata. 2-3' high, \$1.00 each.
C. rotundifolia. 1' high, \$75 each. **C. Salicifolia**. 4" pots, \$1.00 each.

Crataegus (Hawthorn). We have 10 species of the best from Highland Park, Rochester. Welcome in your shrubbery as hedges or as little trees. **Crataegus Genesensis**. 2' high, \$1.00 each; \$7.50 per 10.
Crataegus Dunbari. 2' high, \$1.00 each; \$7.50 per 10.

Cornus florida rubra. Red flowering dogwood, 5' high, 50 to 100 flower buds, \$6.00 each.

Cornus kousa. Beautiful Japanese tree. Month later than the above. 8' high, \$6.00 each; \$50.00 per 10.



Elscholtzia Stauntoni

Cornus Dunbari. A hybrid of Japanese and American Dogwood. A small growing tree, having handsome white flowers in July. The branches are red. 5-6', \$3.50 each.

Cornus paucinervis. Low growing cornel from China. White flowers, black berries. \$1.00 each.

Viburnum Wrightii. Described and named for the botanist of the Perry expedition. 2' high, \$2.00 each.

Viburnum opulus var. xanthocarpa. Yellow fruited highbush cranberry. \$1.50 each.

Xanthoxylum schinifolium. Chinese relative of the Toothache Tree. May make a good hedge. Foliage glossy with fragrance of pargoric. 2-3' high, \$1.50 each; \$10.00 per 10.

Syringa reflexa. A new lilac from China with hanging racemes. 2' high, \$1.50 each.

Picea Korym. New species from China. 18-24' high, \$5.00 each.

Photinia villosa. Chinese Christmas Berry. Red berries in November. Flowers like Shadbush. 3' high, \$5.00 each.

Symplocos paniculata. Turquoise Berry. Very rare. Berries are robin's-egg blue. 3', \$1.00.

Ilex crenata. Japanese Holly. Boxwood-like foliage. Just right for woods or foundation planting. 3', \$5.00.

Vaccinium corymbosum. Swamp Blueberry. Delicious fruit. Oak-like branches, red bark in winter. 3' x 3' high, \$3.00 each.

Ilex opaca. American Holly. 2' high, \$4.00 each.

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considered valuable enough to warrant the expense of protecting. With small plants an inexpensive and satisfactory method is to have a man beat the snow off before it becomes frozen on or weighs down the plants. Large Box Bushes are too valuable to permit being disfigured by heavy snow or sleet and bracing the branches from within with rope is recommended. In very large specimens, where the character of the branching is too weak to depend upon each other for support, it may be necessary to use poles—Cedar or otherwise—placed either within the bush or four placed around the outside and connected by rope.—*Florists' Exchange.*

The lettuce to me is a most interesting study.

Lettuce is like conversation; it must be fresh and crisp; so sparkling that you scarcely notice the bitter in it.

Lettuce, like most talkers, however, is apt to run rapidly to seed. Blessed is that sort which comes to a head, and so remains, like a few people I know, growing more solid and satisfactory and tender at the same time, and white at the center, and crisp in their maturity.

You can put anything (and the more things the better) into salad, as into a conversation, but everything depends upon the skill of mixing. I feel that I am in the best society when I am with lettuce. It is in the select circle of vegetables.—*Contributed.*

Lettuce, like conversation, requires a great deal of oil to avoid friction and keep the crispness. A pinch of attic salt, a dash of pepper, a quantity of mustard and vinegar for all sorts, but so mixed that you will notice no sharp contrasts, and a trifle of sugar.

The 1922 Ten-Ten Book Is Ready for You

This new Ten-Ten Book has all the good points of last year's with a lot of new ones beside.

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You can make your selections without a lot of fussing through arm-long lists.

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INTERNATIONAL FLOWER SHOW

Grand Central Palace, New York
March 13-19

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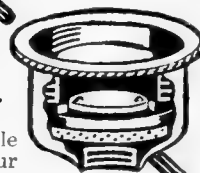
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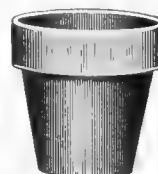
will be pleased to receive for consideration applications from Propagators, Perennial Growers or men experienced in Field, Packing House, Sales or Landscape work with wholesale or retail nursery business. Applicants will please state if now employed, past experience, state particulars and salary asked. Refer answers to A-200, National Gardeners, 286 Fifth Ave., New York, N. Y.

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The Zane Pottery Company
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THE GREENHOUSE MONTH TO MONTH

(Continued from page 52)

post of mushroom bed manure, a little sand and moss; divide the rhizomes into moderate sizes and place in flats. Cover them with the compost but do not water; the moisture in the rose house will give them a good start. This is far better than starting them by the usual method in dry pots.

The next batch of achimenes can be started in baskets.

Clean off the sour soil of carnation beds, gently stirring the surface, and give a fair sprinkling of bone flour. Top dress with one inch of fine loam and well rotted horse manure, and you will realize the benefit to the plants as the days lengthen and the sun strengthens.

Repot into three-inch pots any 'mums that require a shift. Do not allow any check or the buds will be developed from stunted plants and their season interrupted. Keep them very cool, 40 degrees at night and day, if possible, is desirable. If other plants are grown in the house, they must be subservient to the 'mums, or the latter will be ruined. The last batch of cuttings should be inserted this month and the old stock thrown out to make room for the new. Fumigate regularly to keep clear of aphids.

Celosia spicata is a subject useful for house decoration, easily raised and will withstand draught and dust better than ordinary kinds.

Lantanas and Bouvardias that are rooted in sand should be potted and grown along in gentle heat. The weeping Lantana is a fine specimen for hanging baskets or pans.

The sweet peas should have a good mulch of sheep manure and loam, equal parts. Remember the best sweet peas or rather the earliest are better if sown in pots in

March in a temperature of 55 to 60 degrees. They will germinate in ten days. Grow them along gently in the same temperature until weather conditions are suitable for their removal to cold frames.

Give the last batch of cauliflowers a dose of nitrate of soda, a very light sprinkling, or a watering of a teaspoonful to a gallon of water will do nicely.

THE NEPHROLEPSIS CHART

(Continued from page 46)

their cultivation. For example in the labels of the various Nephrolepis forms, the following general method is used:

Boston Fern	Boston Fern
Mutation of	John Scott
<i>Nephrolepis exaltata</i>	Roosevelt Fern
Horticultural	Mutation of
Pierson Fern	Boston Fern
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Boston Fern	Whitman Fern
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In connection with the collection of Nephrolepis forms the study is still being carried on and the writer will very much appreciate any information as to new forms or facts about old forms which may be contributed.

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*of every citizen to do his part day by day
that the nation may prosper and that contentment and happiness may come to all."*

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MY 1922 catalogue features all the new varieties offered by the various American and European specialists, many of which will outdistance older varieties of their class; also all the worth while standard varieties.

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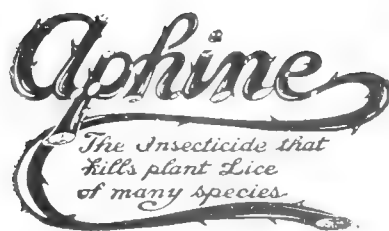
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Very sincerely,

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We have in the past thrown our strength, energy and enthusiasm into the task to fittingly introduce and disseminate his Dahlias; now this sacred trust has been left to us, we must still do more, if possible, particularly to protect those Dahlia enthusiasts who wish to have in their collection a few of the wonderful varieties created by the Judge.

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We offer and supply only strong divisions, taken from clumps that have produced fine, perfect plants last season. *No propagated plants or roots thereof will be offered by us.* This original stock is only available through our firm, with the exception of one concern, the Charles H. Totty Co., whose orders shall be filled by us from the original stock. We have made no such arrangement with any other concern or person.

For lists please see previous issues of this magazine, or ask for our illustrated catalogue.

These Dahlias will always be offered to the public on their record and our assurance of their merit, and if at the end of the season any purchaser is dissatisfied with his purchase and will return the clumps and all their increase, cuttings or other propagation, transportation paid, with an affidavit of its identity, we shall return the price, though if the plant has failed to make good it will not be the fault of the plant but of its culture.

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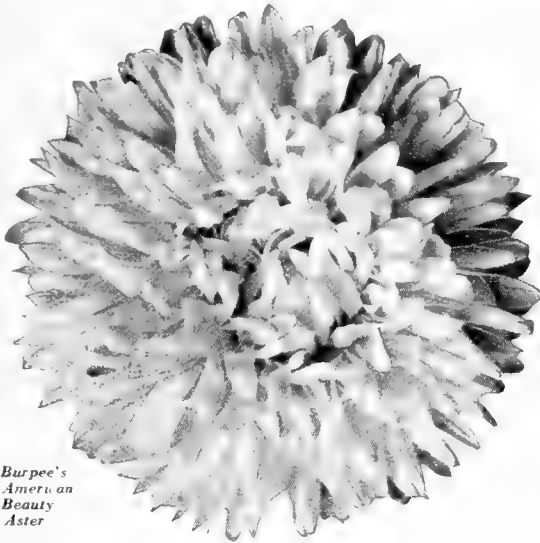
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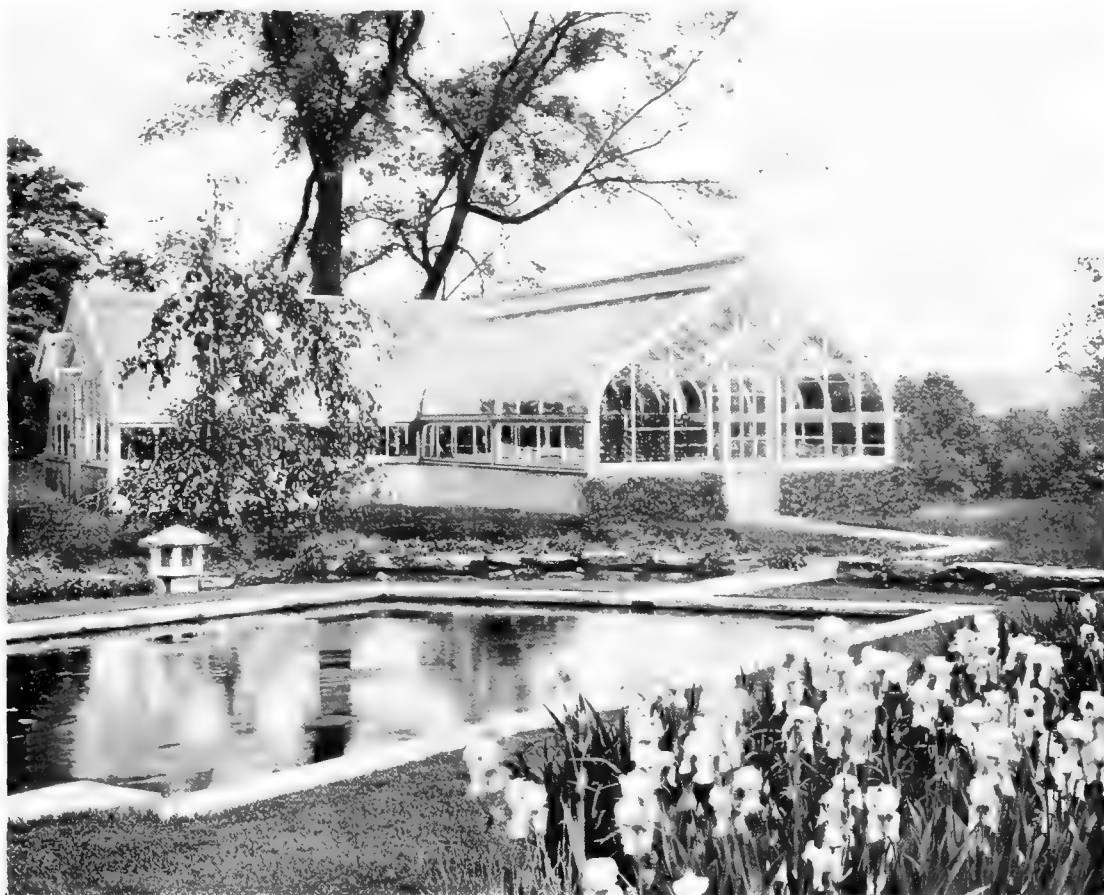
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

MARCH, 1922

No. 3

Things and Thoughts of the Garden

MONTAGUE FREE

*"Always be merry if thou may,
But waste not the good alway.
Have hatts of flowers fresh as May,
Chapelet of Roses on Whit Sunday,
For such arraie ne costeth but lite."*

CHAUCER, "The father of English poetry," was perhaps the first to make mention of the rose in the written English language. Long before his time, of course, the rose occurs in literature. We read of an Arab writer of the 12th century, B. C., who tells of the Magi's Rose being "entrusted to the guardianship of a special angel." Theophrastus and Pliny made observations on roses as they knew them, and, continuing down to our own time, there has been a constant stream of information and misinformation, comment, and eulogy on the Queen of flowers. Poets have sung of the rose, gardeners and others have written reams of practical, but not necessarily prosaic, information concerning its cultivation; and, to all seeming, this will continue so long as time endures and roses blow.

In spite of widespread interest evidenced by many references to the rose in the literature of the ancients it was not until the close of the 18th century that it was honored by a book to itself. According to Miss Willmott in "The Genus Rosa": "The first illustrated book exclusively on roses is Miss Lawrance's folio volume, with ninety beautiful plates, published in 1799."

Since that time the production of books on the rose has been enormous, one might almost say appalling. There are books from nearly every conceivable angle—scientific works dealing with the description and classification of *Rosa*, practical books telling us how to grow them, and talky, talky books designed presumably to while away an idle hour.

Of scientific books, John Lindley's "Rosarum Monographia," published in 1820, is perhaps the most important of the older works. Coming to the modern times, Ellen Willmott's "The Genus Rosa" in two weighty volumes, splendidly illustrated, takes its place as the most sumptuous descriptive work on the rose that has ever been published.

One of the most readable books is "A Book About Roses," by the late S. Reynolds Hole. The genial Dean is always interesting, but especially so when writing about his favorite flower, and in this book there is much sound information agreeably spiced with witty anecdote.

"Roses for English Gardens," by Gertrude Jekyll and Edward Mawley is another extremely valuable English

publication, not only for the text, but also for the excellent photographic illustrations.

When writing of books on roses, it is difficult to know when to stop as the subject is so broad. Therefore we thought to pass on to other matters at this point, before getting any farther involved, but it would not do to omit all reference to the excellent American rose literature which, after all, so far as cultural directions are concerned, is more applicable to American conditions. We think the most informative and valuable publication on the rose is "The American Rose Annual," a serial published by the American Rose Society. This should be in the hands of all rose lovers. "Commercial Rose Culture," by Eben Holmes, treats admirably of this side of the subject. Amongst the older books, "The Rose, Its History and Culture," by S. B. Parsons, published in 1847, is interesting, as also is "The Rose," by H. B. Ellwanger.

* * *

The rose is England's national flower and England has long been famous for the excellence of its roses, whether growing in opulent ducal gardens or clambering over humble thatch-roofed cottages. Although 1921 was not a favorable year for roses in England, because of the drought, a few notes inspired by the editor and by our recent visit may not be amiss in this "Rose Number" of THE CHRONICLE.

Although Kew does not specialize to any great extent in roses, its representation of the genus is more than adequate and there is much of interest to the rose lover practically throughout the whole year. For, although there may not be blooms to see in the large collection of rose species there is always something of interest, even during the Winter, either in the form of brilliant colored fruits such as we get in *Rosa pomifera*, *R. Helenae*, and *R. setipoda*, or in strange and conspicuous spines as in *R. omciensis* var. *pteracantha*.

The garden roses, hybrid perpetuals and teas, are planted in a series of beds in the vicinity of the great palm house. In almost every case only one variety is grown in a bed and these give a stunning display when at their best. Here are many groups of standard roses, or, as they are called in this country, "tree roses," and, for a ground cover in these beds, the bedding violas are largely used.

Much could be said in favor of planting a ground cover beneath those roses whose habit of growth admits of this treatment. Those who advocate it claim that these low growing plants serve to shade the ground and thus help

keep the roots of the roses cool during the hot Summer months. Furthermore, if suitable plants are chosen their flowers will contrast pleasantly with those of the roses, provide beauty and interest when the roses are out of bloom and hide the bare ground. Of course careful selection of plants must be made for this purpose and only those kinds used which have a shallow root system, otherwise they will compete with their neighbors for moisture and food and the roses will suffer in consequence. It is advisable, also, to use those that may be cleared out annually, thus affording unhampered opportunity to fertilize and till the soil about the roses. Plants that have been recommended are the bedding *Violas* in variety; *Viola papilio*; *Myosotis* for Spring effect; and that charming Southern California annual, *Phacelia campanularia*. In the Cambridge Botanic Garden, it was customary to plant the bed containing the hybrid perpetual roses with mignonette. If the roses and mignonette should happen to be in bloom at the same time, one might imagine that the conflicting perfumes would be objectionable, but, as a rule, mignonette when sown out-of-doors, does not come into bloom until the main crop of roses is over.

A feature at Kew is the beds of hybrid perpetuals of strong growing kinds such as "Frau Karl Druschki," "Clio," and "Gustave Regis," grown under the "pegging down" system. Instead of pruning back the long strong growths, almost as vigorous as those produced by the ramblers, the tips are bent over and pegged down to the ground. This system insures such a profuse display of bloom and the beds present the appearance of billowy mounds of blossom and give an acceptable variant to the usual rose bed.

The climbing roses at Kew are cared for on a simple, inexpensive, and yet effective pergola made of iron pipe with the uprights linked lengthwise and across by means of chains, thus forming a continuous line of garlands. This pergola extends for a distance of two or three hundred yards and is a ravishing sight in June when the roses are in full bloom. It is the practice to plant a strong grower and a weaker grower opposite each other with the intention that the strong grower should furnish the upright on one side and the transverse support, while the weaker kind covers the upright on the opposite side. There are many who claim that roses suffer when their branches are fastened to metal, as in this case, because of the great fluctuation in its temperature, but experience at Kew has shown that no ill effects are discernible from this cause.

The methods of displaying the roses at Kew are not stereotyped and the rose dell offers a suggestion that might be copied to advantage in many gardens. This is formed in an extensive hollow, the site of an old gravel quarry. The banks of the excavation were shaped to provide pleasing contours and suitable soil introduced which was held in place, in a series of irregular terraces, by enormous tree stumps. The whole area, with the exception of a winding grass walk down the center, was then planted with rambler roses of various kinds, the tree stumps forming supports over which they clambered. Many of the roses have now found their way into trees which surround the site, greatly adding to the beauty of this valley. For this is indeed a valley of roses, growing in a most pleasing and natural way, with no trace of artificiality, and it presents a most attractive picture throughout the whole of the year.

There is a rose at Kew, raised from a bush that grows on the grave of Omar Khayyám, that is of great interest to lovers of the Persian poet, and calls to mind his quatrain:

"I sometimes think that never blows so red
The Rose as where some buried Caesar bled;
That every Hyacinth the Garden wears
Dropt in its Lap from some once lovely Head."

Whatever this rose may do in its native country, it refuses to thrive very satisfactorily at Kew, and, as we remember, it was always infested with green lice. A bush propagated from the one at Kew has been planted on the grave of Edward Fitzgerald, the first to translate the *Rubáiyát* into English. This interesting rose is *R. damascena*, a variety of which is used largely in the Balkans in the production of attar of roses, probably the most expensive perfume known. From this species many of our favorite garden roses have been developed.

The Cambridge Botanic Garden contains a representative collection of rose species and some of these are noteworthy, either for the size that they have obtained, or for their adaptability to some form or other of ornamental planting. In the latter group comes the Scotch rose, *Rosa spinosissima*. This, as its name implies, is tremendously spiny and it is well to wear stout leather gloves when working amongst its branches. At Cambridge a large bed was planted with this rose and many of its varieties. Although they did not present an especially striking display, yet they were interesting and possessed a quiet beauty all their own. This rose is found in the wild state in Europe, Western Asia, and China. It is perfectly hardy and is well worth growing by those who are interested in wild roses.

One of the most striking features when in bloom is an enormous specimen of *Rosa moschata*, or *R. Brunonii*. This clammers all over an Austrian pine and reaches a height of about 50 ft. with a diameter of almost 40 ft. It blooms quite freely in June, its flowers are white, and have the fragrance of musk. This species is found wild in Southern Asia and Abyssinia, but unfortunately is not hardy in the north. According to some authorities, it is also found wild in Europe and India, which gives it an extensive range in the wild state.

Incidentally, planting some of these strong growing roses so that they may clamber over old trees, is an admirable way of displaying their beauty. In Miss Jekyll's book, "Roses for English Gardens," there are many illustrations showing roses clambering over trees. For example, there is a photograph of a splendid specimen of climbing "Aimée Vibert," 15 ft. high and about 10 ft. in diameter, literally smothered in blooms; and the blush-white Avshire rose, the "Garland," provides a charming effect supported by an old *Catalpa*. And then there is a picture of the famous Banksian rose, taken on the Riviera, which shows it vigorously doing its best to smother olive trees and cypresses. One may readily imagine the glorious effect of its pale yellow flowers seen against the somber background.

In most gardens there are trees, living or dead, that could be spared for the purpose of supporting climbing roses and nothing could be more beautiful than a picturesque old tree when garlanded with sprays of fragrant rose blossoms.

There is another remarkable rose in this garden, a bush rose this time, *R. macrophylla*. It is notable mainly on account of its size, for it is over 18 ft. high and more than 25 ft. in diameter. This rose has one feature that commends it to gardeners in that it is practically spineless and does not present such a thorny problem to the pruner as do most of the roses. This is another Asiatic plant, coming from the Himalayas and China, and is a profuse and constant bloomer.

Hardy Iberis—Candytuft

RICHARD ROTHE

BOTH the annual and perennial garden species of *Iberis*—a genus of the order *Cruciferae*—on account of their usefulness for edging purposes, enjoy world-wide popularity. As natives of South Europe and Western Asia, taking kindly to our climate and conditions, they proved of easy culture and in the production



Iberis stylosa, syn. *Thlaspi stylosum*. (Courtesy of Alpinum Nymphenburg.)

of flowers they are as abundantly free as we see them abroad. Closely related to the hardy evergreen class of *Iberis*, and for this reason in European catalogs sometimes listed as such, are the two alpinines: *Æthionema* and *Thlaspi*. Though hardly known on our hemisphere they have in common with the *Iberis* a wonderful adaptability for dry wall and rockgarden plantings.

Of the hardy candytufts the well known species *Iberis sempervirens* leads in hardiness and dense bushy growth of the pure white ones. The varieties *Garrexiana*, *Perfection*, *Snowflake* and *superba*, as improved types of *sempervirens*, are claimed to be more or less larger flow-



Iberis sempervirens.

ering. Little Gem, identical with *Weisser Zwerg*, a dwarfy compact growing variety, is the ideal thing for sunny rockeries of diminutive sizes. All the hitherto mentioned begin to bloom in April, continuing according to latitude throughout May and part of June.

Iberis corratifolia, *semperflorens* and the purplish-suf-

fused *Tenoreana* are more adapted for the South. The same may be said of *Iberis Gibraltarica*, a stately growing species, with, at the base, woody branches and large corymbose heads of white flowers beautifully suffused with pinkish and reddish hues. Throughout the Middle Atlantic and Northern States those species need careful Winter protection and more or less sheltered positions.

Iberis Jucunda, syn. *Æthionema cordifolium*, a pink-flowering species from the Lebanon and *Thlaspi alpestre*, white; *rotundifolium*, light violet and *Thlaspi stylosum*, syn. *Iberis stylosa*, with pink corymbose heads are low-growing Alpines found in botanical gardens and in the collections of European amateurs.

Hardy candytufts are best raised from seeds planted early in Spring under glass. When of sufficient size transplant out in the open ground in garden soil, preferably sandy loam deeply dug. For enrichment use old well decomposed barnyard manure or some leafmold. Move established stock on permanent place of flowering



Iberis corratifolia.

before October 1st or early in April. *Æthionema* and *Thlaspi* appreciate slight addition of crushed or ground limestone to soil. Hardy candytufts may be also propagated by cuttings during Spring and early Summer. Being evergreens hardy *Iberis* require Winter protection, preferably leaf covering, thickness according to latitude of location.

Success in life may be nearly always measured by the amount of initiative shown in doing one's work. This conquering and elevating force must come from within, and is the development of a genuine desire to keep from becoming lost in the crowd; a will to do those things in hand as though the whole future depended upon the result. Difficult tasks become easier to the individual showing initiative, because he or she leaves the beaten path and finds a better solution, gaining at the end of the day a reward of sheer personal happiness at having accomplished something worth while in spite of all obstacles.—N. C. R. Progress.

My Indian Rose Garden

GEORGE CECIL

INDIA essentially is the land of roses. They may not be the choicest blooms; the petals have an irritating habit of parting company with the calyx; and though, in the main, they resemble the European variety, the gorgeous richness, or delicacy of coloring, as the case may be, is lacking. Still, a rose is a rose—whether it be a good or a bad specimen of its kind, and there is no gainsaying the fact that in India, from Cape Comorin to the borders of Afghanistan, they grow in profusion all the year round. And both the European and the native population glory in the possession of rose gardens.

When "stationed" in the upper part of India, where roses are almost as common as daisies are "at home," I was the happy possessor of a perfect rose garden. With its row upon row of flowering trees and bushes, its trim gravelled pathways and deep green turf, which, elastically yielding to the footfall, made walking on the most appallingly hot day a joy, it was the envy of my neighbors. But Fate, alas! conspired to ruin my agreeable "scheme of things entire," and one evening during the "rains," when the languorous air was heavy with the scent of a certain indigenous perfume which a recent tropical shower had brought to perfection, I received a "semi-official" letter and was transferred to a frontier town.

The thought of the roses, however, consoled me, for I had been told that the North was the Paradise of the rose-fancier.

Upon reaching my destination, I was driven past garden after garden gay with roses of every conceivable variety. The trees were thick with them; great bushes grew high enough to hide the stooping bent "bhists" (native water carriers) as they manipulated the goat skins containing the water which brought life to the roses; and many of the picturesque bungalows were half-hidden by the clustering crimson rambler. As I neared the end of the journey I had visions of the rose garden which awaited me—for I made certain that my house, like all those I had seen, would be provided with so pre-eminently desirable an appendage. Judge, then, of the sorrow which filled a too confiding heart when I found myself relegated to an ugly, bare bungalow far from the outskirts of the "station," perched on a rock, and without the slightest vestige of a garden. However, I was determined to have one, even if it was only an apology for a garden; and before twenty-four hours had flown I arranged with a local "mali" to lay down innumerable cart-loads of earth and to transplant the required number of trees. In fact, the same evening all was in train; and when I awoke the next morning the rocky space round the little bungalow was several feet deep in earth—abstracted probably from the "compounds" (enclosed ground) of other "Sahibs."

By the time I had been a week in the new abode, roses galore met my grateful eye.

At first, everything went well. The roses flourished like green bay trees in the wilderness, while the "mali" (gardener) and the "bhisti" between them made the little garden a thing of joy. But trouble, alas, was brewing; a cloud no larger than a pin's point appeared on the horizon of my happiness, and soon de-

veloped to its full extent. For some unaccountable reason the roses drooped, the leaves turned a dull myrtle green, and each tree and bush withered and died. The occurrence was inexplicable, for gallons of water were daily expended on the garden, and the "mali" was unremitting in his attentions. Eventually the murder was out. It appeared that the "bearer" (colored valet) had a cousin, a ne'er-do-well, who, when not actually doing time, was active engaged in burglarious pursuits, and that, the thieving business being slack, he was anxious to find his relative employment—as my "mali." To that end he plotted and schemed as only a native can; and when the villain found that a desperate effort had to be made, stealing out in the dead of night, he calmly severed the roots of each tree. There was nothing to do but to order a fresh supply—and to pray that they would take kindly to their new surroundings.

What with the exasperating delay of the natives employed in searching for rose trees and the unnecessary time taken by the railway company in delivering a consignment from a "station" some miles away, I had to possess my soul in patience for what seemed an eternity. Most things, however, come to him who philosophically waits, and a month after the disaster I awoke one sultry day to find my garden blooming once more, while a crimson rambler gave promise of rambling along the verandah railings. But I was once again doomed to disappointment. On returning to the flowery little fortress after putting in a week at a distant race-meeting, I discovered that the rose-garden again wore the dejected look which I had such good reason to dread; and a glance sufficed to show that the cause was want of water. Subsequent enquiry elicited the fact that, taking advantage of my absence, the trusted "mali" and "bhisti," sallying forth to the "bazaar," had spent the time in drinking deep of the wine which is so strictly forbidden by the prophet, with the result that when the rose-trees most needed their attention no water was forthcoming.

Nor was this all, for when, after infinite care and coaxing, the garden was once more got into order, one by one, each tree manifested signs of diminished vitality. It appeared that the "district" was infested by porcupines, and that when these most unnecessary animals grew tired of the varieties usually forming their repast, they were wont to make a raid on some "sahib's" garden, and to feast themselves, for choice, upon the roots of the rose-trees. In my case the mischievous brutes had, in this manner, killed every tree and shrub to be found on my little quarter acre of land.

Tired of battling against destiny, I left the garden to its own devices. And when, a month later, I found myself back in Lucknow, and in my old bungalow, I once more enjoyed the pleasures which had been mine before I left for the "station" where rose gardens can be both a joy and a snare.

Thus was destiny fulfilled.

5 Rue des Pyramides, Paris, VI.

How easy it is for one benevolent being to diffuse pleasure around him, and how truly is a kind heart a fountain of gladness, making everything within its vicinity to freshen into smiles.—Washington Irving.

Irises

GRACE STURTEVANT

THE year 1922 marks an epoch in garden irises. International Iris Conferences are scheduled by the Société Nationale d'Horticulture de France in Paris and by the Royal Horticultural Society in London during the blooming season, and the six hundred and fifty members of The American Iris Society plan to be well represented in the discussion preceding the acceptance of standards of nomenclature, classification, and description.*

If you are not already an iris enthusiast you do not yet realize what visions of delight the word "Iris" conjures, what wonderful color effects are possible when the modern irises are planted in masses with your other garden flowers. This is the month for planning and I hope that all of you have marked a generous number of spaces on your garden maps with the magic word "Iris" and that already you have dreamed over the tantalizing descriptions in the catalogs of the specialist. The iris is best planted after the flowers are past, so reserve the space, not only by marking it on your plan, but also by placing a corresponding stake in the garden itself. This late planting also permits you to visit exhibits and nurseries (the New York Botanical Garden has an official Test Garden and this year an exhibit on June 3rd), to select from the blooming plants not only the color, but the very height, or habit, that will perfect your pictured scheme.

I do not want a garden of irises *only* (a collection is another proposition altogether) but rather one where other perennials in contrast may enhance their delicate beauty of form and color; early bulbs, *Arabis* and Mat pinks with the *Korolkowii* and *Pumila* hybrids, *Phlox divaricata* and tulips with the Intermediates, Sweet Rocket and Lupins in pink and purple and white, with the later irises with here and there yellow roses, *Hugonis*, *Harrisoni*, and Persian. Sometimes the peonies and rambler roses flower before the irises are gone and then, as is the case with some of the flaming oriental poppies, we must restrict our iris colors in the interests of harmony. A garden of irises alone should be in a secluded spot, a fairy land where one can visit in its glory and then leave to the gardener until another Spring.

For distant and mass effect clear self tones in various colors are the best, markings on the falls reduce the apparent size and blended tones become a mere blur in the distance. Varieties with short, high branches that bring the blooms nearly on a level form a more solid sheet of

color. But in the garden where the flowers are within reach and generally below the level of the eye, plant those with some outstanding quality of delicate color or unique marking, of form, substance, or satiny or velvety texture. There are varieties of blended tones where thin layers of lavender and pink and yellow in varying intensities seem laid one upon another, others where two sap colors seem actually combined in the cellular structure, and many whose beauty changes with every change of light. Some are most fragrant, redolent with the odors of grape or waterlily. Select a few, too, among the

whites, or plicatas, that are cream, or white delicately penciled with mauve and violet, for their airy grace when you brave the dew on a moonlight night. And lastly put the rich, sombre purple and maroon varieties and others with colors that do not carry well into the garden where they will add character as accents. All these points and many more will add immeasurably to your pleasure as you become intimately acquainted with the charm of each individual iris.

The early *Pumila* hybrids make excellent informal borders next the path, and and in drifts now running to the back, or reaching to the front, can be arranged the majority of the varieties that range from 15-36 inches in height; while behind and in selected spots can come the five foot stalks. These giants are mostly of recent* introduction and I call them of the garden "decorative type" as they seem best suited to

planting in clumps that will reveal the branching habit and the poise of the immense flowers. In England they are often staked as a precaution against wind and rain.

The effect of light and shade on the different iris colors, or on even the same tone in different varieties, is a study in itself. In some the beauty is intensified by the flickering shadows from nearby trees; others reveal a vivid vitality in the sun of noonday which they lose when brought indoors; while an ethereal beauty envelopes my planting of *Pallida Dalmatica* "Princess Beatrice" when the level rays of the setting sun make translucent the flaring falls. And to an even greater degree are iris colors modified by artificial lighting. For cutting, use the pale colors, whites and near-whites tinted with blue, lavender or pink, mere touches of color that suggest combinations with darker tones. Do not neglect the decorative value of the foliage either within or out-of-doors. An iris leaf seems one of Nature's bequests that cannot be bettered by man or art as an accompaniment to the iris flower; the contrast of the strength and simplicity of its upright, sword-shaped blade with the delicate tissue of rounded segments grouped in threes, the subdued



Barrelane, a "decorative type" of Iris.

*For further information write R. S. Sturtevant, Sec'y, Wellesley Farms, Mass.

frosted green with brilliant colors delicately lined in character with the whole bloom, form perfect counterparts.

For color in masses I should choose from a list containing *Florentina alba*, Ingeborg, Mrs. Horace Darwin, and Fairy; for white or pearl—Mrs. G. Reuthe, Glori de Hillegom, *Pallida Dalmatica*, *Juniata*, and Parc de Neuilly in increasing depth from white to violet; *Flav-ascens* and *Aurca*, yellow selfs; Mrs. Alan Gray, Her Majesty, and Wyomissing for delicate pinks; Caprice for claret, and Loreley, Mithras, or Princess Victoria Luise, and the Blue and white Rhein Nixe for bicolors.

For the garden beds I will tell you what I consider superfine, but I want you to remember that there are hundreds of good ones, much less expensive ones in fact, but as we become more critical our appreciation of the following novelties grows: Ma Mie, Parisiana, Milky Way, Damozel, Cygnet, Mme. Chobaut, Delight; White

Knight, Myth Avalon, Mlle. Schwartz, Queen Caterina, Balboa, Halo, Neptune, Mme. Cheri, Moa, Opera, De Guesclin, B. Y. Morrison, Prince Lohengrin, Reverie, Dominion, Tyrian, Wild Rose, Crusader, Rose Madder, Mme. de Gaudichau, Shekinah, Prospero, Asia, and Ambassadeur. All these are of the best, among their varied colors each should be able to select his or her ideal.

Somehow we never think of the iris as a florist's flower and yet last year some of the finest window displays in San Francisco were of irises, bearded irises. My correspondent writes that the light tones were in fine demand and that, if cut in bud and delivered by hand the results were extremely good. Let us hope that in time the iris will become as familiar to the city dweller as it now is to all who have a bit of garden. Given plenty of sun and good drainage they will thrive for the most careless of growers. Their beauty is within the reach of all.

Cultural Suggestions for the Gladiolus

A. E. KUNDERD

WHILE the *Gladiolus* gives satisfaction with ordinary care and culture in average soils, the superior blooms which are produced by special attention more than justify the extra care.

If possible, each season a new location, or a new soil at least, should be used so that bulbs are not planted more than every third year in the same soil. As far better results are obtained from rich soil, it is advisable to spade in a good covering of manure late in the Fall preceding the plantings, and in Spring to spade deep and to pulverize thoroughly as soon as the soil is in proper condition.

To have a long blooming season one should plant at intervals of about two weeks from the time when the garden is started until the middle or latter part of June. Bulbs can be planted four inches deep and over in mellow soils, and from four to eight inches apart in the row; deep planting prevents, to some degree, the plants from falling over in their blooming period. The blooms will have greater resistance against the sun and more lasting qualities if the soil in the beds are frequently and thoroughly watered at evening. Do not allow a soil crust to form in rows among the plants, but cultivate well, especially early in the forenoon following a watering the previous evening. When the blooming spikes begin to appear, cultivation should only be about two inches deep. Once every week or ten days liquid fertilizer or prepared sheep manure can be applied to the soil near the rows, but one must be careful in not making the application too strong.

To intensify deep shades, apply Scotch soot when the plants are about half grown; and it is said that the delicate shades can be clarified by applying weak lime water just before the blooms begin to open. Nitrate of soda, about a tablespoonful to two gallons of water for each dozen plants, is very beneficial and may be applied to the soil once every week or ten days after the buds show color. If one prefers the pulverized nitrate of soda, this may be sprinkled over the soil, raked in and watered.

Slender stakes of wood or bamboo, painted light green to make them less conspicuous, serve as fine supports to the spikes during their blooming season. Where horizontal lines are used, fasten them to the end posts firmly set and stretch the wires tightly. A

few more stakes should also be placed at intervals along the lines. Instead of using cord to tie the spikes to the supports, tie them carefully with strips of cloth.

When the first flowers open, one should cut the spikes, and allow them to bloom in the house in order to secure the best results. Every morning the stems should be cut a little with a long slope and not squarely across; rinsed and given fresh water, and the wilted blossoms removed. The blooms are refreshed and improved by being placed in a cool cellar during the night.

If good bulbs are desired for the following year, four to five strong leaves should be left on the plants when cutting the spikes.

In the Fall, dig the bulbs before the plants are too ripe, and cut off the tops. Dry well in the air and sunshine, cure thoroughly indoors for a few weeks, then store in a cool, dry cellar. A covering of sand while in storage (after bulbs are well cured) is a protection against frost or dampness, which tends to develop disease. Keep as near 40 degrees as possible.

Should bulbs become affected with disease or scab, they may be benefited by one of the three following remedies: Soak bulbs in a bichloride of mercury (corrosive sublimate) solution of fifteen grains to each gallon of water for twenty minutes. Or: Use two ounces of corrosive sublimate dissolved in fifteen gallons of water and soak for two hours (for smaller amounts in proportion). Or: Use one ounce of 40 per cent formaldehyde to each four gallons of water and immerse bulbs for twenty minutes to one hour. I have left bulbs immersed for longer periods in even stronger solutions, but care must be exercised not to make the treatment too severe for fear of injury. Sometimes it is best to remove the peel before bulbs are treated. These treatments are generally employed just before planting.

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The Tropical Rain Forest

WILLARD N. CLUTE

BACK and forth across the equator moves the sun on its annual journey from the tropic of Cancer to the Tropic of Capricorn, carrying with it a belt of rainfall that makes the so-called Torrid Zone perennially green. There are, to be sure, many places in the tropics where desert conditions prevail; in fact, most of the great deserts of the world lie fairly close to the equator, but such regions are always caused by unusual conditions such as a mountain range intercepting the moisture-bearing winds. In other parts of the tropics the moisture is not only abundant, it is superabundant. Just how abundant it is may be realized when it is known that if all the water that falls on the Eastern United States were collected for a year, it would not equal the amount that has fallen in a single day in the tropics! In some unusually wet spots there is more than six hundred inches of rainfall a year—more than fifty feet! Under such conditions rivers rise with great rapidity, sometimes thirty feet in an hour. A body of water that behaves in this way may give peculiar ideas to the natives. In Jamaica they often speak of the river as a separate entity. They say it is "down" when it is running bank full and "up" when it is in the clouds overhead and preparing to come "down."

The effect upon vegetation of this enormous rainfall, coupled with the maximum heat and light can scarcely be imagined by one who has not seen the tropical rain forest. So luxuriantly do all sorts of vegetation grow that one must literally chop his way through it if he leaves the beaten track. Everywhere the forest is a dim, shaggy, dripping, wilderness of plants.

One of the first differences to be noted between the rain forest and the forests of temperate regions is the way in which each species is scattered through the woodlands. There is seldom a grouping of single species to form colonies such as we find in our forests of oak, pine, beech, maple, and the like. The number of different species is, of course, infinitely greater and they usually attain a larger size. A new form of trees is also noticed—a columnar form with unbranched stem, and ample leaves springing from a single bud at the summit. Of this type are the various palms, tree-ferns, dracænas and numerous others. The excurrent type, represented by our pines and spruces, with a central stem from which smaller branches are regularly given off is usually rare. Most of the forest trees, however, are of the solvent type, such as is found in our elms and oaks and at a little distance the tropical forest could not be distinguished from a temperate region forest unless it happened to have an unusual number of palms in it.

In the desert the most interesting forms of plants have been evolved by adaptations for securing and conserving the scanty supply of moisture, but in the rain forest may be found many devices for avoiding excess moisture. Often the leaves have long slender tips for throwing off the water away from the roots. With an abundant and perennial supply of water and unvarying warmth, a new phase is given to the struggle for existence. Competition is now for sufficient light. On the forest floor are great numbers of mosses, ferns, and creepers which have learned to exist in the semi-twilight cast by the tall trees—shade plants, we call them—but plants which need more light have moved to the branches of the forest canopy. Thousands may be found on a single tree. Among the plants with this epiphytic habit one notes a large number of orchids, bromeliads, ferns, club-mosses

and the like. Great lianas, or woody vines, often with stems as large as a middle-sized tree, loop from tree to tree and bind the vegetation into a solid mat of verdure.

Where the forest is more open, for any cause, giant herbs appear. Some of these are so large as to pass for trees as in the case of the banana. This plant, however, as can easily be seen in the usual greenhouse, is really an herb equivalent to the iris, day-lily or peony of more boreal regions. Other great herbs are the ginger, arrow-root, canna, taro, and many ferns.

After botanizing in the tropical rain forest for a time the student discovers that many of the plant families which are characteristically herbaceous in regions nearer the poles are here prevailingly woody. This is especially true of the *Leguminosæ* or pea family nearly all of whose species are woody in the tropics. It is scarcely a surprise, therefore, to learn that there are morning-glory trees and that violets frequently grow on bushes. The verbenas, the composites and even the grasses are represented in the tropics by species of truly tree-like proportions. As a matter of fact, only about a dozen species out of a hundred in the tropics are not woody. This, however, is to be expected. In a region where every requirement for plant growth is abundant, the vegetation naturally reaches its maximum.

The tropical rain forest may be described as evergreen, but it is not evergreen in the sense that the leaves never fall. Usually the old leaves drop one at a time all through the year as new ones are developed. There are some species, however, even here, that take, as it were, an annual vacation, throwing off their leaves and standing bare for a time, even during the height of the season. Most curious of all is the behavior of the tropical almond whose branches have not learned the advantage of effective teamwork and which rest, therefore, as the whim seems to strike them. Such a tree presents a remarkable appearance with some branches in full leaf and others in complete rest.

The visitor to the tropics, recalling the beautiful flowers he has seen in our conservatories, expects an unusual floral display but in this he is commonly disappointed. There are, to be sure, occasional outbursts of bloom that fairly dazzle the eye, as when the logwood is in blossom or the flame tree hangs out its flowers, but seldom does the tropics have anything to offer more beautiful than our northern woodlands in May. Though many flowers are found in the torrid zone, they are lost and their beauty eclipsed by the all-pervading leafiness. Another result of the mild climate is the absence of a thick bark on the trees. The stems of even large specimens are often a decided green. There is nothing to prevent flowers springing from the trunk and larger branches and many plants bear flowers in this way. The chocolate plant is noted for producing its fruits from wood many years old. In our own region practically the only woody plant with this habit is the red-bud. With us, owing to the progress of the seasons, each species of plant has its regular time of bloom. Violets and roses bloom at one end of the growing season and golden-rods, asters and gentians at the other, but in the rain forests the plants are at no necessity of conforming to a given temperature or time of year and therefore bloom whenever impelled to do so. Many are in almost continuous bloom with perhaps a maximum when the rainy season is at its height.

The Progress of the Rose in America

EDWARD A. WHITE

Professor of Floriculture, Cornell University

"The interest in the rose cannot pass. The appeal of the flower is practically universal. The variety in form and color is wide and the adaptation remarkable. It has become part of the experience of the race."—L. H. Bailey in "The American Rose Annual," 1917.

PROBABLY no other genus of ornamental plants appeals to so great a number of people as does the rose. This is due in a large measure to the varied characters of the many species and varieties, also to their wide range of adaptation to different soils and climates.

It would indeed be interesting if there were available, photographs of ancient American rose gardens, or of roses growing in greenhouses during earlier periods of the

were as nearly ideal as it was possible to have them. It has been within a comparatively few years that American rose breeders have been working to produce ideal species for the landscape, the garden and the greenhouse. To see the splendid results of recent achievements in rose breeding, it is necessary to visit our best public parks, to make the June pilgrimages with the members of The American Rose Society to their test gardens, to visit the gardens of American rose enthusiasts, or to attend some of the large exhibitions of cut-roses, such as the National Flower Show in Indianapolis, Indiana, the Winter exhibition of carnations and roses at Hartford, Conn., or the New York Flower Show. In places such as these the best American roses may be seen.



Van Fleet Hybrid of Rosa Wichuraiana X R. Pernetiana. (Courtesy of American Rose Society.)

commercial cutflower industry, so that comparisons might be made between the earlier methods of culture and those of today. Within the memory of the writer the commercial growing of cut-roses has developed from comparatively small ranges with a limited output, to huge "rose factories" where the daily output numbers thousands of blooms. When one sees the huge shipments of roses from some of the large rose production centers one wonders where they all go. However, the American people demand them all to beautify their homes, to cheer the sick, to carry expressions of sympathy to the afflicted, to make more joyous the marriage ceremony; in short, to brighten and make glad every occasion and to enable the American people to "Say it with Flowers."

The history of the development of both garden and greenhouse roses in America is interesting. During the early years of rose growing little attention was paid to breeding varieties suited for our peculiar conditions. We took what the Europeans sent us and supposed they

The native species have not played a large part in the development of better American types. A few, however, are suited for ornamental landscape effects. Among them are *Rosa setigera*, *R. blanda*, *R. carolina*, *R. lucida* and *R. nitida*. *Canina* and *rubiginosa* are European species which have escaped from cultivation. It has been the species from Europe and Asia that have so largely influenced the present day type of ornamental roses.

Those who had an opportunity to visit the late Dr. Van Fleet, at Bell, Md., and to see there his results with hybrids of *Rosa Willmottiae*, *R. Hugonis*, *R. altaica*, *R. rugosa*, *R. omicensis*, and *R. Moysesii*, realize how seriously rose progress in America has been retarded by the "passing on" of a wonderful rosarian. His article in "The American Rose Annual" for 1921 on "Rose-Breeding in 1920 at Bell Experiment Plot" should be read by every lover of the rose. Speaking of the favorable climatic influence for rose pollination during the season of 1920, Dr. Van Fleet wrote, "The harvest in matured

seed was greater than heretofore and covered the widest range of species yet attempted, the special features borne in mind being, hardiness, disease resistance and good

can gardens." "Particular attention was given in 1920 to the utilization of the lesser-known northern species of both hemispheres such as *Rosa inodora*, *R. pulchra*-



Hybrid of Rosa Hugonis X R. altaica, two years old. (Courtesy of American Rose Society.)

garden appearance of plants. Elegance, profusion and continuity of bloom, are of the highest importance and every effort is made to develop these perfections in hybrid progeny. There are already too many weak

lenta, *R. Murielae*, *R. hibernica*, *R. micrantha*, *R. involuta*, and *R. Jundzillii* of the Old World and native *R. Macounii* and *R. nutkana*, and the most northern forms of *R. nitida*, *R. pratincola* and *R. lucida* or *R. virginiana*.



Rosa Willmottiae in bloom at Bell Experiment Plot. (Courtesy of American Rose Society.)

varieties that produce a few exquisite blooms under exceptional conditions of culture but new varieties that do not require incessant coddling are needed for Ameri-

There is considerable diversity in garden adaptability among these extremely hardy wild roses and crossings with the several attractive new Chinese species, and with

highly developed florists' varieties may open up new features of value in the offspring. Seeds of most of the northern species are of slow germination and probably several seasons will be needed to bring out their possibilities."

Rosa multiflora has been the parent of many climbing varieties which have left an indelible impression on the mind of rose lovers. The more trailing or prostrate, evergreen species *Wichuraiana* has played an important part in the development of the so-called "Pillar Roses." Such men as Jackson Dawson, Dr. Van Fleet, M. H. Walsh, W. A. Manda, Hoopes Bros. and Thomas and others, saw the possibilities for improvement in the desirable characters of each, through hybridization, and crosses were made between these two species; also between these and *R. setigera* and the Hybrid Teas and Hybrid Perpetuals. Among the best of the present day varieties which have resulted from such crosses are Dawson (*R. multiflora* × General Jacqueminot, H. P.), Farquahar (*R. Wichuraiana* × Crimson Rambler, H. M.), Dr. Van Fleet (*R. Wichuraiana* × Mme. Gabriel Luizet, H. P.); *Gardenia* (*R. Wichuraiana* × Perle des Jardins, H. T.), American Pillar (*R. Wichuraiana* × *R. setigera*); and *Christine Wright* (an unnamed *Wichuraiana* seedling × Caroline Testout, H. T.).

Rosa multiflora crossed with Teas and Hybrid Teas has also given a type of the so-called "Polyantha Pompons" like George Elgar and Cecile Brunner, varieties now so popular. There have also been produced from similar crosses the dwarf polyanthas so useful as bedding roses. Varieties of these like *Echo*, *Triomphe Orleansais*, *Maman Turbat*, and *Mme. Jules Gouchault* are also much used by florists in forcing for Spring bloom.

The Tea Roses became popular in America during the middle of the nineteenth century. *Rosa odorata*, or the original Tea Rose with double blush flowers, was introduced into England from Western China in 1810, and in 1824 a form with pale yellow flowers was introduced. From the crossing of this species with *Rosa chinensis*, the Bengal Rose, and other Chinese species, the present day Tea Roses have been produced. Among the older varieties of Tea Roses still grown to a considerable extent for commercial purposes, particularly for corsage bouquets in retail stores is Bon Silene. This was originated by Hardy in 1835 and is one of the few varieties which has stood the long-time test. Catherine Mermet originated by Pierre Guillot in 1869 was the parent through bud variation, in 1885, of the Bride. This was the principal white variety grown in greenhouses until the advent of the Hybrid Tea, White Killarney, in 1909. Bridesmaid, the pink Tea Rose popular as a greenhouse variety, was also produced by a bud variation on Catherine Mermet in 1892.

The species of roses which have been chiefly responsible for increasing the vigor of garden varieties are *Rosa gallica*, the Provence Rose, *R. borbonica*, the Bourbon Rose, and *R. damascena*, the Damask Rose. Hybrids of these species with *R. chinensis* and *R. odorata* have given the present day type known as Hybrid Perpetuals or Remontants. This race became popular from 1860 to 1890. Many Hybrid Perpetuals are now grown, but their more limited blooming period makes them less in demand than are the more constant blooming but less hardy varieties of Hybrid Teas. Frau Karl Druschki, General Jacqueminot, Paul Neyron, and Hugh Dickson are still found in the majority of American Rose gardens.

Near the middle of the nineteenth century European rose breeders began to search for some method of increasing the hardiness of Tea Roses. As a result existing varieties were crossed with Hybrid Perpetuals. One of

the first results of such a cross was achieved by Pierre Guillot of Lyons, France, when he originated La France.

This was, however, not recognized as a new type until 1890. The first product of the hardier type which was classified as a Hybrid Tea rose is said to have been Cheshunt Hybrid, introduced by George Paul in 1873. The writer had the pleasure of a day with George Paul shortly before his death last September. Mr. Paul then showed him with great pride, two of his most recent hybrids, "Paul's Perpetual-flowering Lemon Pillar" and "The Premier," a hybrid of *Rosa lutescens*.

Hybrid Tea roses of European origin have played an important part in American rose breeding. They have furnished the parents for many of our best varieties. Honor must be given Alex. Dickson for Killarney, William Paul for Ophelia, Pernet-Ducher for Mrs. Aaron Ward, Sunburst, Souvenir du Claudius Pernet, and to many others for varieties which have been and are to be such important factors in American rose production. However, our American breeders have been doing most excellent work and no finer results have been achieved anywhere than those of American rosarians.

John Cook, Baltimore, Md., has given us the following which have been foremost among commercial varieties: My Maryland, 1908; Radiance, 1908; Francis Scott Key, 1913; Mrs. John Cook, 1919; Glorified La France, 1919. E. G. Hill, Richmond, Indiana: Richmond, 1905; Rhea, Reid, 1908; Columbia, 1916; Premier, 1918; Mme. Butterfly, 1918; Hill's America, 1921. Alexander Montgomery, Hadley, Mass.: Wellesley, 1905; Crimson Queen, 1912; Mrs. Chas. Russell, 1912; Hadley, 1914; Crusader, 1919; Pilgrim, 1919. Frederick Dörner & Sons Co., Lafayette, Indiana: Hoosier Beauty, 1915. In distinctly garden varieties of Hybrid Teas, Captain George C. Thomas has recently produced Bloomfield Abundance and Bloomfield Progress, 1920; Howard and Smith; Los Angeles, 1916, and Miss Lolita Armour, 1920. These are but a few of the recent valuable acquisitions to American varieties by American rose breeders.

The field of rose breeding is a broad one and it is safe to say that the work our Americans have thus far done is but a beginning; the future holds much of promise.

Other agencies are at work in America which stand pre-eminently for rose progress. "The American Rose Society" is carrying the rose far to the front as a flower for all classes of people. The work of the organization is governed by a body of men who are generously donating their money, time and thought to those subjects which stand for progress in every phase of rose growing in America. The test-gardens in various sections of the United States which are under the direction of the A. R. S. have been valuable agents in demonstrating the adaptation of various species and varieties to different soils and climates. The American Rose Annual, which the organization publishes for its members, is full of valuable rose literature. The volumes constitute a rose library and no one interested in any phase of garden work can afford to be without them.

With the increasing interest shown by our American people in rose growing, with the literature which is accumulating year by year, and best of all with the introduction of the hardier varieties, which are eliminating the discouraging element of Winter killing in the northern section, rose progress in the United States is certain.

There are two things necessary for the enrichment of life, mentally, physically, socially, and spiritually. They are very simple and are known to all men. One is hard work and the other is a determination to do right. —Calvin Coolidge.

Late Rose Introductions

SOUVENIR de Claudius Pernet, a *Pernetiana* seedling, is a rose that has been long waited for. It is a golden yellow rose which will stand our vigorous requirements and will not turn white around the edges as does most every yellow rose. The orange yellow shade so prominent in such sorts as Mrs. Ward or Sunburst is entirely absent here, and Souvenir de Claudius Pernet with its clear shining yellow color has created a veritable sensation among all visitors to the numerous exhibitions where it has been shown.

Max Graf has attractive, single, bright pink flowers, with petals even more crimped than the pink form of *Rugosa*. While an excellent climber, or pillar rose, it is even more appealing as a ground cover, surpassing, in this respect, any of the *Wichuraiana* varieties. It is especially attractive

when planted on a steep bank, or trailing over a stone wall.

Mrs. William C. Egan, a new hybrid tea rose, is named in honor of the wife of William C. Egan, well known and appreciated for his love of horticulture. It is an extremely vigorous, healthy grower, and popular for individual plantings in small gardens as well as for massed effect in large gardens. The reverse of the petals is of a pleasing shade of light pink, the interior a deep flesh color with a golden line at base of petals. Its long pointed buds are of perfect form, developing into flowers of good shape.



Souvenir de Claudius Pernet. (Courtesy of Charles H. Totty Co.)

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Max Graf. (Courtesy of Henry A. Dreer, Inc.)



Mrs. William C. Egan (Courtesy of Henry A. Dreer, Inc.)

Potash-Marl

E. N. CLEVELAND

POTASH-MARL is a natural fertilizer and as its name indicates is a marl containing a high percentage of potash, as distinguished from Calcareous or Lime-Marl.

The use of marl was fully understood at the beginning of the century. Since the time of the Roman conquest, and probably before, the marl beds of northern France and southern Belgium have been constantly exploited. Great hollows are found in many of the fields of northern France made by the excavation of marl many centuries ago. The true function of marl, however, was but little understood, and even its chemical composition was practically unknown by those using it.

Potash-Marl is a consolidated mass of sandy particles of emerald green color composed of potash, iron and phosphoric acid minerals, together with the decomposed and crystallized remains of whales, sharks' teeth, mollusks, fishes and other nitrogenous materials.

The following is an extract from a scientific report made by Dr. Hal Trueman Beans, Ph. D., of Columbia University, New York:

"Glaucinite, the principal mineral constituent of greensand, is essentially a hydrated silicate of iron and potassium, associated with minerals containing aluminum, calcium, magnesium and phosphorus. Owing to the fact that it is a hydrated silicate, it is easily decomposed by the most varied chemical reagents, including even weak organic acids. Silicates of this class are to be sharply distinguished from non-hydrated silicates such as the feldspars, which are extremely difficult to decompose. Furthermore, hydrated silicates absorb additional water in large quantity and are, therefore, further distinguished from the feldspars and similar silicates which show no tendency to retain water.

"The analysis of Potash-Marl gave this result:

Moisture	4.05%
Loss on Ignition	4.83
Iron & Aluminum oxides.....	28.52
Insoluble Matter	50.79
Phosphorus (P_2O_5)	1.14
Calcium Oxide (CaO).....	2.14
Potash (K_2O)	6.50

"In order to determine the relation between the potash and phosphorus in the available form as determined above, and the total potash and phosphorus contained in the greensand, separate determinations of the total quantities were made, with the following result:

Total Phosphorus (P_2O_5).....	1.84%
Total Potash (K_2O).....	7.24

"It thus appears that approximately 90 per cent of the total potash is in a form which will ultimately be available to plant assimilation. It appears therefore from the above analysis and from the well-known chemical characteristics of glauconite, that these samples of greensand contain in a reasonably readily available condition all of those inorganic mineral substances which are essential to plant growth. While it is true that practically none of this material is in a water-soluble condition, nevertheless, glauconite is so easily decomposed that the above figures may properly be taken to represent that portion of the material which will actually become available to the plant."

Potash-Marl is both a direct and indirect fertilizer, as it improves both the chemical and physical properties of the soil. It acts in conjunction with the elements at all times to assist in unlocking plant food from the nat-

ural soil as well as from the life elements contained in itself; correcting acidity and prompting nitrification.

The New Jersey State Geologist's last report, ending June 30, 1920, just published, makes the following statement as to the solubility of Potash in greensand: "In spite of its low solubility, recent experiments show that plants in their early growing stage will assimilate potash from greensands as effectively as from the usual soluble commercial potassium salts."

The phosphoric acid contained in the Potash-Marl is acted upon the same as the potash, it becomes slowly soluble through chemical action and weathering. The iron and aluminum oxides in Marl produced quantities of nitrogen, although in the analysis of the Marl no credit is given for it producing any nitrogen which is of great value as a fertilizer. Quoting from "Agricultural Chemistry," by Justus Liebig, Ph. D., F. R. S., one of the greatest chemists in the world, Page 103, "The oxides of iron and aluminum are distinguished from all other metallic oxides by their power of forming solid compounds with ammonia. Minerals containing oxide of iron also possess in an eminent degree that remarkable property of attracting ammonia from the atmosphere and retaining it."

Dr. Edmund Ruffin, of Virginia, began his experiments with marl in February, 1818. From land thus treated he obtained an increase of 40 per cent over the crop on similar land untreated. Encouraged by this result, he planned more extensive experiments for future years. Without entering into the details of these trials, the result may be stated as overwhelmingly in favor of the use of marled fields. The yield was more than twice as great as from the same fields before marling.

The experiments were continued for a long series of years, accurate records being kept of the history of each plot of ground, frequent comparisons being made between the measured yields of marled and unmarled fields. Marl was tried with and without manure and manure was tried with and without marl.

The greater the number of experiments and the more numerous the results obtained the greater proof was given that the use of marl was of great advantage.

The careful manner in which the experiments were carried on show him to rank as one of the most intelligent experimenters of his time. He searched the literature of every age for mention of the occurrence of marl and the history of its publication to the purpose of agriculture. He was familiar with foreign publications on the subject.

United States Government Report, Published in 1910, Page 761 states: "New Jersey Marl has been of incalculable value to the region in which it is found. It has raised this region from the lowest stage of agricultural exhaustion to a high state of improvement.

"Lands which in the old style of cultivation had to lie fallow, by the use of marl produce heavy crops of clover and grow rich while resting. Lands which had been worn out and left in common are now by the use of this fertilizer yielding large crops of the finest quality. Everywhere in the marl district may be seen farms which in former years would not support a family, but which are now making their owners rich through productivity."

Extract from "The Grapes of New York," by Prof. U. P. Hedrick. Subject: Grapes Suffering from 'Yellow' (Continued on page 91)

The Dahlia

THOMAS PROCTOR

THE Dahlia, now prominently identified as one of our most beautiful Autumn flowering plants, has rapidly advanced in popular favor during the last few years. No doubt, the many new and gorgeous varieties introduced by the hybridizers have in no small measure contributed greatly to the popularity of this plant.

There is now a vast contrast between the flowers of the Dahlia we have today, from what they were twenty or thirty years ago when we had but a few indifferent varieties to adorn our homes with. Now we have hundreds of rare and beautiful varieties to choose from, represented by all the colors of the rainbow.

CULTIVATION

The cultivation of the Dahlia is by no means difficult, providing their wants are carefully attended to during the growing season. One should bear in mind, for instance, that the Dahlia is a moisture-loving subject, and therefore, should never be allowed to suffer for the want of water at any stage of its growth.

While we all know that this plant will grow and produce flowers in almost any kind of soil and situation, one who is ambitious to win the silver cup with his blooms will endeavor to select the most promising location he can find in order to make a success of his efforts.

I have found that a level sunny position facing south, and well protected from stormy winds, gives the best results. If the grower has time at his disposal to trench the ground for the reception of his plants the results will be all the better for the extra labor involved. If that is not feasible, digging or plowing will suffice; in either case, however, the ground should be incorporated with well rotted cow manure with a small sprinkling of bone meal included.

STAKING AND PLANTING

When the preparation of the ground is accomplished, strong stakes should be provided and firmly placed in position, four feet apart each way, and near the top of each stake a six inch label tacked on for the name of the variety to be planted. Around the bottom of the stakes a little pulverized sheep manure forked in is of much benefit in giving the young plants a start.

It makes little difference whether tubers or rooted cuttings are used for planting. The varieties that are intended for the production of exhibition blooms should in no case be planted too early. June 5 to 10, or even a little later will be quite soon enough for the latitude of Long Island. If set out much in advance of the dates mentioned, the plants will become exhausted, and consequently will not produce exhibition blooms. When the plants are six inches in height, the points are pinched out in order to induce the plant to send up more growths. As soon as conditions will permit, the young shoots should be carefully tied to the stakes as they extend in length. With varieties that are intended for the production of exhibition blooms, one bud only should be left on each shoot to develop; otherwise, several buds may be left on, as desired by the cultivator.

FEEDING

The Dahlia, like the Chrysanthemum, responds well to generous treatment, and there is nothing better in my opinion, than liquid cow and sheep manure for that purpose, applied alternately twice or three times a week according to conditions. Scotch soot also in liquid form and used once a week when the buds are well advanced, plays a very important part in the development and color

of the blooms, as well as the foliage. Nitrate of soda is also considered beneficial if used with discretion.

Feeding should commence when the plants have become well established, lightly at first, then gradually increasing the strength until the maximum is reached, that is, when the buds are well advanced. When the latter begin to show color, feed lightly again until the blooms are three-quarters developed; then stop using the cow and sheep manure, and finish off the blooms with a weak solution of the Scotch soot.

INSECTS

Insects are troublesome in most sections of the country and will do considerable damage to the foliage if not checked in time. I find that Ivory soap, dissolved in water and applied to the foliage with a spray pump once a week will invariably prevent the ravages of all kinds of insects and keep the foliage in healthy condition.

WINTER STORAGE

As the Dahlia is a very tender subject, the first good frost generally ends its usefulness as a cut flower producer. When that takes place, the stems should be cut back to within eight or ten inches from the ground; the labels with the names of the varieties taken from the stakes and securely fastened to the stem that remains. If the weather is dry and conditions otherwise favorable, the plants should be lifted—the dirt partly shaken off—and transferred to a frost-proof cellar, where the light is partially excluded, and be left there for the Winter. Care must be taken to see that the tubers do not shrivel, generally the result of a too hot and dry atmosphere. If that condition should occur, sand or dirt, scattered over the tubers, will in most cases remedy it.

To get the best result from the plants it is essential that the ground be constantly cultivated, not only to keep down the weeds, but also to retain the moisture. This should be particularly attended to when the weather is dry and hot. Never allow the plants to wilt for want of water or the result will be disastrous if exhibition blooms are looked for. Be prepared at all times for the sudden approach of destructive wind storms, or the plants may be ruined, if not protected and carefully tied to the stakes. Remove all weak and useless growths; also flower buds that are in excess of those required for development. The fewer the buds left, the better will be the blooms. Keep a sharp lookout for insects, and before they commence their depredations, apply the remedy as advised for prevention. Study carefully the plant's requirements at every stage of its career, and success should be the reward.

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Roses and the Rose Garden

ARTHUR SMITH

WE have previously alluded to separate gardens devoted to special purposes, as being possibilities in connection with home surroundings, and certainly where there is room a good Rose Garden is one of the most desirable features.

The genus *Rosa* is a very large one, and perhaps in no other is there so much dispute among botanists regarding the number of species contained in it. While a French botanist has listed and described some four thousand as being distinct species, the majority of botanists confine the number to about one hundred. While some knowledge of roses from a botanical standpoint is interesting in connection with the parentage of the rose of today as known in our gardens, from a purely horticultural point of view botanical classification is of minor importance as, with one or two exceptions to be noted later, all cultivated roses are hybrids, although the leading garden-groups follow to some extent specific lines. At the same time it is impossible to trace back all of the hybrids to their original species with accuracy.

We know that from the earliest times when any attempt at gardening was made at all, great dependence was laid upon the rose. We have a race of roses which have come down from the ancient gardens of Persia; the medieval gardens have given us others, and down to the present time gardeners have always vied with each other to produce new and wonderful varieties of this classic plant which has been known for ages as the Queen of Flowers. Consequently we have now a rose for every situation and, where the climate is genial enough, roses in bloom every month of the year. The results of domesticating the rose are marvellous, yet, so far as being at the end of possibilities in the way of producing kinds more suitable for the extremes of climates found in this country are concerned, the real breeding of roses has little more than begun and a rich field for the future is indicated. In this direction the passing away of Dr. Van Fleet is a tremendous loss to horticulture as the success of his work as far as the time allotted to him permitted, proved that he was working along the right lines.

Leaving out botanical considerations entirely, horticultural roses may be divided into three groups: "garden" roses, a term confined to tea roses, hybrid teas and hybrid

perpetuals or remontant; climbing roses; and shrubby roses.

Those contained in the first group are the result of hybridizing about a dozen species, and selections and seedlings from the resulting hybrids. These roses do not lend themselves to landscape effects because they have comparatively little foliage and lack strong shrubby characteristics. These highly improved roses are essentially flower-garden subjects—hence the term given them. To produce anything like good results from them they must be grown by themselves so that they can receive the special care in the way of soil treatment, pruning, watering, feeding, which could not be conveniently given elsewhere.

It is worth while to state some of the distinctions between the three classes of which this group is composed.

The tea roses are admired the world over for their delicious fragrance, the exquisite form and rich tints of their flowers and value for cutting. They are the least hardy of the group and require special methods for protecting them in climates of severe Winters.

A good way,

where they cannot be wintered in the open, is to place cold frames over them, the size of bed and position of the plants being previously arranged with this idea in view. The slope of the frame should be to the east. It is important to remove the sash when the temperature is at thirty degrees or above, and air should be given when the thermometer is at twenty.

The hybrid tea varieties have some of the characters of the teas, especially their constant blooming qualities, and most of them have some of the hardiness of the hybrid perpetuals, but they require to be well protected during Winter with strawy manure or leaves in climates where the temperature reaches zero. This class has been produced by crossing the teas with hybrid perpetuals, but there is considerable variation among them, especially as to hardiness, as well as in flower production, and the most satisfactory are those partaking of the good qualities of both.

The hybrid perpetuals are hardier than the preceding, and more vigorous and robust in habit, their flowers being larger, some of them of immense size and generally of more substance than either of the others. They



A Rose Garden. (Courtesy of Bobbink & Atkins.)

flower as a rule only early in the Summer, but as an offset we are rewarded at that time with a greater abundance of larger and longer keeping blossoms. Many varieties, not only produce a wealth of flowers during June and part of July, but do so at intervals all the season with an increase towards the Autumn. This is especially the case if, after the first blooms are over, the bushes are cut back to encourage new growth of wood, for, with these, as with almost all others, it is only upon new wood that flowers are produced.

A rose garden is practically only a garden for the production of roses of the highest quality in the greatest quantity, in the same way as a vegetable garden is for the production of vegetables, therefore everything should be subservient to these ends.

For convenience as much as for anything else a rose garden should be rectangular in shape and its beds laid out along formal lines. Fancy beds of intricate patterns are not only entirely out of place but at the same time create considerable inconvenience and cause waste of room. In addition to the fact that these roses are not themselves any addition to the appearance of a landscape, the formalness of a garden of this kind renders it objectionable as a part of a harmonious natural planting, therefore some means must be taken to prevent it producing a discordant note in home surroundings.

A rose garden or rose border should be in an open spot away from high buildings and tall trees so that the plants can obtain plenty of sun and air, and the ground may have a little slope in any direction, but all other conditions being equal, a gentle slope to the southeast is preferable.

Having chosen the situation and decided upon the extent of ground to be devoted to this purpose, some method of planting the surroundings must be devised so as to avoid making the rose beds part of the landscape. I have known rose gardens to be merely surrounded by a closely clipped privet hedge, which neither from a landscape point of view nor from any other, does anything to relieve the situation; in fact it would be better to have a rose garden entirely exposed and part of the landscape than to surround it by a formal unsightly hedge. It is better to screen a rose garden and any other special garden by some natural planting arranged so as to harmonize with the general landscape plan, so that, as far as one can know from looking towards it, it might be the boundary planting of a lawn with nothing but the street on the other side. It is important that the connection between the screen of the special garden and the other planting be invisible and that the entrance or entrances be arranged with this idea in mind. It is of course impossible to make hard and fast rules regarding whether this garden should be screened all round or not, generally speaking one side at least may be open without bad effect. At all events, considering the rose garden from the inside—whatever may be planted around it—a space all along the inside of the boundary should be left to the width of about eight feet, which can be devoted to a border of five feet and a walk of three feet. It is very effective to have this border devoted to the roses comprised in the shrubbery group combined with herbaceous perennials. The rest of the area can be divided into beds three feet wide leaving two main walks three feet in width at right angles across the center, with such subsidiary walks two feet wide as may be necessary to the area. These walks are for the purpose of enabling everything connected with the culture and care of the roses to be done without stepping off a walk.

While thorough preparation of the soil is important for all plants it is especially so for roses as they are gross feeders and it is practically impossible to make the

soil too rich, provided all other conditions are right. The first step is to see that the soil is properly drained. If it is not so, then drainage must be provided, as roses are always injured and frequently killed by stagnant water remaining around their roots for any length of time. In the case of a single rose bed only, draining can generally be accomplished by taking out the soil to a depth of three feet, (keeping the raw subsoil by itself so that the surplus can be removed away) and placing a foot of broken stone, bricks, or coarse cinders at the bottom and filling up with the best of the soil. If this method is not found sufficient to remove surplus water, then resource must be had to tile drainage. In any case the latter is always necessary when any sized area requires draining.

The ideal soil for roses is a deep loam; if the soil is very clayey a foot of the clay subsoil should be removed and some sandy top-soil substituted. Clay soils should be made lighter, and sandy ones made heavier, according to the class of roses to be planted. The hybrid perpetuals thrive best in a clayey loam, while teas and their hybrids must have a soil which is lighter and warmer. It is therefore well when all these three classes are grown, to plant them in beds to themselves so that the soil may be so regulated as to suit the special likes of each.

In preparing the ground for roses it should be spaded and thoroughly broken up to a depth of not less than two feet where the subsoil is sandy; when the latter is clayey one may go a foot deeper with great benefit; at the same time six inches of half decayed stable, or cow manure for preference, should be incorporated with it.

The best and in fact the only practicable method of carrying out this operation is by trenching. Top soil, to the depth of a foot, is taken out of a trench eighteen inches wide across the bed and placed on one side. As rose beds, and in fact all flower beds, should be two or three inches below the surface of the walks or surrounding ground when the plants are in position and the soil has settled, it is necessary to take out three or four inches of the subsoil which should be thrown out on one side to be subsequently carried away. The manure should then be thoroughly mixed with the soil at the bottom of the trench; it is not enough merely to turn this bottom soil over in lumps but it must be thoroughly broken up and mixed with the manure. After this the top soil from the next trench should be turned over into the first trench and the work proceeded with as before. When the end of the bed is reached the top soil from the first trench is used to fill up the last one. After this trenching is completed hydrated lime, or what is better, sulphate of lime or gypsum, together with pure ground bones should be applied to the surface at the rate of half a pound of each to the square yard and worked in with a rake or hoe. This soil preparation should be done as long before planting time as possible, but the surface work should not be done when the ground is sticky. Autumn trenching is best for Spring planting, especially when the soil is at all heavy, in which case the surface work is better left until Spring, except that the lime may be spread over it at the time of spading; lime should never be spaded under.

Excepting in climates where the Winters are mild, Spring is the best time for planting, the actual date depending first upon the earliness, or otherwise, of the season; one can plant earlier in a sandy soil than in a clayey one. Dormant roses may be generally set out by the middle of April in the latitude of New York, provided conditions are suitable, but those which are not dormant and which have been wintered in pots under such conditions of temperature that their foliage has re-

mained green are best left until May, or even June, if the soil is late warming up. In planting dormant roses with roots which have not been confined in pots, holes should be wide enough to allow the roots to spread out and deep enough, if grafted stock is used, to allow the junction of the rose proper with the stock to be two or three inches below the surface. This depth may be greater in sandy soils than in clayey ones. The soil should be well firmed around the roots. Some years ago a story went the rounds of the trade to the effect that a woman who had bought a dozen or so roses from a grower, complained that they had all died but one, and this particular one her husband, whom the woman was particular to describe as a very heavy man, accidentally stepped upon. The moral of this story is that if this heavy husband had accidentally stepped upon all the roses the chances are that they would have all lived. After making the soil firm around the roots, if it is at all dry, the holes should be left open to a depth of about three

inches and filled up with water; subsequently they can be filled in and the bed finished off.

The distance apart to plant depends upon the kind; teas and their hybrids may be as close as eighteen inches, while hybrid perpetuals should not be less than two feet apart.

At planting time dormant roses should have the weak growth removed and the remainder shortened to about three buds; the cut should be made closely above an outside bud. Usually roses out of four- or five-inch pots that are in a growing condition require nothing more in the way of pruning than the removal of weak shoots.

For planting out of doors roses should not be more nor less than two years old. Never plant roses discarded from a forcing house, however low in price. Up to recent years these worn-out roses were thrown on to the dump, but they are now being sold for bedding purposes for which they invariably prove unsatisfactory.

(Concluded in April issue)

Some of the Earlier Spring Wild Flowers

FLORUM AMATOR

NOW the Spring equinox is close at hand when we have days and nights of equal length; the birds are returning from the southlands, where they have been wintering; on the southern slopes of the hillsides the green blades of grass are beginning to appear. On these slopes, in the woodlands along the banks of the full-flowing brooks, in the protected glens, and amid the rocky ravines, the pretty wild flowers are beginning to bloom.

On this bank where the soil is so thin and poor that the grass never grows luxuriantly or in this thin unfertile soil covering a flat ledge, if we get down close to the ground and look sharply enough, we may find in mid-February or early March a tiny speck, as it were, of a white flower on a little plant one to three inches high and soon succeeded by a diminutive flat oblong to lanceolate seed pod. This is the *Draba verna*, Whitlow-Grass. The flowers are really too small to pluck for a nosegay, but we sometimes gather just a few to show our friends as specimens of one of the smallest flowers which grows and that, too, on one of the smallest plants. Nevertheless this tiny plant usually unseen and down-trodden came sometime, somehow, over the stormy Atlantic from Europe.

Let us betake ourselves down into this swamp land, sparsely furnished with trees and bushes. Here we find one of the earliest, strangest looking, homeliest and most ill-smelling, yet withal one of the most interesting of the Spring flowers. This ugly flower is the *Symplocarpus foetidus*. A thick, fleshy spathe spotted and striped with yellow and purple and green encloses a large oval, fleshy spadix thickly set with small greenish-yellow and purplish flowers. The common name of this plant is Skunk Cabbage. Its odor makes it well deserve the first part of its name, and the great cabbage-like leaves which appear later than the flowers make its last name a fitting one. This is our earliest Spring flower, blooming in February and March. Its flowers by their odor even at this early date attract on warm days small flies and bees. Thoreau writing in April, 1853, speaks of seeing the bees entering the spathes of the Skunk Cabbage and

later coming out with "little yellow pellets of pollen on their thighs."

Up out of the muddy swamp land let us climb onto the rocky and thinly wooded hill side. Here we may find with its foliage half-hidden by the fallen tree leaves another March and April flower, one of the prettiest of all of them, the *Hepatica triloba*, Liverwort. The downy scapes rising out of the evergreen three-lobed leaves of the previous season are surmounted by charming flowers varying in color from blue, lavender, and pale pink to white. Of this lovely child of the early Spring the poet Lowell wrote in "The Biglow Papers":

"I, country born and bred, know where to find
Some blooms that make the season suit the mind,
An' seem to metch the doubtin' bluebird's notes,—
Half vent'rin' liverworts in furry coats."

Growing in the same location as the *Hepatica* and blooming in the same month, we find, bearing flowers of pearly white and of great beauty, the *Sanguinaria canadensis*, whose common name is Bloodroot. From the rootstock of this plant, when broken there exudes an orange-red, astringent, acrid juice from whose color this plant has received its name. A pretty and interesting feature of this flower which is borne on scapes is that the flower buds are enfolded in its leaves.

On the same rocky, wooded hillside we find two other March and April flowers. The one is *Anemone nemorosa*, variety *quinesfolia*, the Windflower, whose slender stems bearing pretty white flowers with purple-tinted edges move with every breeze. Of this flower Bryant wrote: "Gay circles of Anenomes dance on their stalks." The other is the *Anemone thalictroides*, Meadow Rue Anemone, often growing not far away from the Windflower. This plant has a leafy stem from whose top spring three to six white flowers much like those of the Windflower.

Growing on the exposed hillsides around this wooded slope, and sometimes within it, there is another March flower, the Early Saxifrage, *Saxifraga virginicensis*, whose

(Continued on page 91)

Work for the Month in the Garden

SAMUEL GOLDING

*So silently but swift,
Above the wintry drift,
The long days gain and gain:—*

AND although we may still have wintry weather, there is something in the air that whispers, "The year's at the spring." Already those welcome harbingers, the Snowdrop, Crocus, and Scillas are flaunting their colors in the garden; the buds of the Forsythias are swelling, soon to break forth into gold cascades of bloom. There are signs on every side that Mother Earth is once more waking from her Winter sleep.

This forcibly reminds us that the time of gardening with pencil and paper is past, and must now be superseded by the spade and hoe, if we are to live up to resolutions formed to have the best gardens ever during the season of 1922.

The rapidly growing seedlings and vegetables in greenhouse and frames will need the most careful attention. Those from last month's sowing should be transplanted as soon as they can be conveniently handled. Flats are the best receptacles for most subjects, though egg plants and tomatoes may be exceptions, for which pots are preferable. The frames should be kept closed for a few days and shaded from bright sunshine until root action has commenced. Cultivate between the rows of growing crops and thin just enough to allow room for development. Sow more seed as often as a perfect succession demands. Regard must be paid to careful ventilation, especially during this month when we are liable to very sudden changes of temperature. Cold draughts are to be avoided as they are most detrimental to young plant life. Conserve the sun heat as much as possible by early closing during the afternoon. Maintain a nice growing atmosphere and keep all plants as near the glass as convenient to give them the benefit of light and sunshine to develop and maintain a sturdy growth and robust habit.

As soon as the frost is out of the ground and conditions will permit, no time should be lost before digging or ploughing for the earliest crops. If this was done in the Fall when one has more time to carry out any deep digging or trenching, so much the better. As I have previously remarked, this brings its own reward for the soil receives the benefit of the purifying influence of the frost. This deep digging is the mainspring of future success in growing vegetables in quantity and of quality. The light sandy soils are the best for raising early crops. They do not retain the moisture to the same degree as the heavier loam or the still more retentive clays, and therefore they are in a fit condition at an earlier date.

When ground is fit, and that will be when the soil is easily broken up with a rake, and when trodden or rolled, does not pack into a stiff or sticky mass, sow first early peas, spinach, parsnips and plant onion sets. For first peas it is advisable to sow the round seeded varieties as they are more reliable and will germinate under conditions where the marrowfats would probably not. This especially applies to heavy soils.

Give early attention to the asparagus beds and fork in a good dressing of farmyard manure, if it was not done in the Fall. If you contemplate planting asparagus

choose well prepared ground; place them in trenches about eight inches deep and two feet apart, and from three to four feet between the rows; cover with about two inches of soil. Secure two year old crowns which are generally regarded as the most satisfactory.

Remove the protecting material from strawberry beds and give a good dressing of bone meal. Tie up raspberry canes, thinning out all useless ones. Finish pruning all small bush fruit trees.

Place some strawy litter over rhubarb crowns which will help it to start into growth and protect it from late frost.

Toward the end of the month, remove wind breaks and protecting materials from around rhododendron beds and other more tender subjects; also from spring flowering plants, otherwise tulips and other bulbous stock will become drawn as do early shoots of herbaceous plants if protection is afforded too long.

Go over the rambler roses, removing all useless wood. Tie up the strongest of last year's growths, and do not overcrowd. Cut back late flowering shrubs, or those that bloom on the wood made during the current year: *Hydrangea paniculata* is one of the most common of this class of shrubs. Spring blooming shrubs must be cut back after flowering. To cut them back at this time would mean the loss of the season's bloom. Ornamental climbers will need care and should be thinned and tied up where they are required.

APRIL

During the early days of April all is activity in the vegetable garden. Arrears of digging and preparation for the reception of the crops should receive first attention. Such vegetable plants in the frames as cabbages, cauliflowers, onions, leeks, should be thoroughly hardened off before planting into their final quarters. Remove the sash on all favorable days. Give an abundance of water to crops that are growing under glass. Protect the hearts of cauliflowers from direct sunshine by breaking some leaves over the center of the plant. Keep egg plants, peppers and tomatoes moving, and allow them plenty of room in which to develop.

Make a sowing in pots of early sweet corn, lima beans, squash, and cucumbers to be planted out when the ground is warm enough. This method generally ensures a gathering of these vegetables a week or two in advance of those sown outside.

Transplant annuals from last month's sowing, using a good light compost into which plenty of leaf soil has been incorporated. Sow further batches of annuals for succession. This is a good time to sow the main plantings of Asters, Zinnias, *Phlox Drummondii*, Scabious, etc. Plant out Pansies, Sweet Williams, Foxgloves, Canterbury Bells, or other early blooming subjects that have wintered in the cold frame, as soon as favorable weather permits.

Get in a succession of peas; marrowfat varieties are generally preferred. This is one of the most important crops of the season and every effort should be made to extend its duration. Sow the main crop of onions and some early carrots and beets on a warm border. Make a planting of parsley, radishes and lettuce.

The Greenhouse, Month to Month

W. R. FOWKES

MARCH and early April are exacting periods in plant growth. Nature has aroused from her slumbers and all is active. The sunshine and extra daylight demand more attention to details.

The vinery, where the most luscious fruit is to be garnered next November, has gained new vigor. The new growths must be disbudded, but one must be careful to leave sufficient lateral growths with good eyes. Allow a little air on the top of the house all night, and avoid scalding the tender shoots. The border must be watered thoroughly and a moist atmosphere maintained inside. Check the fires early in the day, although on dull days it is policy to give brisk heat and air.

Peach and nectarines in pots that have set a good crop must be carefully disbudded. There is no mystery about this. Take away with thumb and finger every third growth, leaving enough to form next year's plant. Keep the roots well supplied with water, and the drainage should be kept clean. Give for a foliage stimulant one ounce of sulphate of iron in one gallon of water, twice a week. It will tone up the plants' systems. Syringe these plants every afternoon at three o'clock, standard time, thoroughly wetting the paths and closing the house entirely. At six o'clock open the top ventilator one or two inches, but no more. The warm afternoon treatment is conducive to rapid growth and development of the small fruits, as the June sunshine is to outdoor fruits. The open ventilators at night are the means of solidifying and resting the plant. Growth and rest are necessary in plant as well as in human life.

Palms need sufficient shading to maintain their health and vigor. They must not be allowed to become dry at the roots, and in regard to food, they like more rich fertilizer than any plant grown. Spray with ivory soap at least once a fortnight, and thus keep the plants clean of scaly pests that so disfigure the young growths and leave their hideous mark. Botanically speaking, palms together with bananas and most tufted plants are drained by the centripetal system, that is, the slope of the leaves and stems is such that the water, when applied overhead is led towards the trunk, so that syringing is not only useful but necessary. Give more air along with extra heat.

Keep young crotons clean. Avoid stimulants to get a quick growth. When the final pot is reached, plenty of plant food will benefit, but if you kill young roots now, the leaves will fall.

The last batch of strawberries in pots will require a little Clay's fertilizer to finish off their fruit. Give plenty of air and water. A shelf is a good place for them.

Pot up the early Summer batch of tuberose. Place four bulbs in a six inch pot, using humus and cow manure. They will succeed better in this compost than in anything else.

In the orchid houses, more shade is necessary; also a little change of plants to different parts. *Lelia anceps*, having blossomed, should be hung up near the ventilators. It does not require so much water now as it will in six weeks.

Renantheras are pushing out their spikes. Keep them near the glass. Give the vandas a cool position, especially the *cerulea*, which is not often seen in good flowering condition. Too much heat and dryness is the frequent reason. Place them over a bed of oak leaves and fill the nodules with rain water every day. These plants need it more than many orchid plants. Rain water is the proper food for orchids. No stimulant is needed, as the rain has captured all the nitrogen and sulphur these plants require.

Miltonia vexillaria, commonly called *odontoglossum*, or the pansy orchid, is making rapid strides towards blooming, by strong growths that will send forth some fine spikes of bloom in May. Watch that aphid does not disfigure these beautiful plants.

Cymbidiums are easily grown, thriving best if left alone in a corner.

Chrysanthemum plants are on their way, and the exhibition kinds are now in four-inch pots. They can be kept cool as possible in a house or a cool frame; 40 degrees at night is high enough. Keep free from aphid.

Spray your carnations more than usual to keep clear of red spider. Carnation plants should be placed in cold frames ready for planting outdoors.

Tulips are now coming into their own and are arrayed in all their glory. Abundance of water and liquid manure is necessary for perfect growth.

Calla Elliottiana is a useful Summer blossomer. Its lovely yellow blooms and variegated leaves are greatly admired.

Lilium lancifolium should be started in six-inch pots. Do not use retarded bulbs of this variety as they have not proved useful, in fact, they are of no use. The same applies to gladioli. Do not use cold storage bulbs as they do not pay. Lily of the valley is, of course, all right.

Fill all empty wire hanging baskets with *Asparagus Sprengerii*.

Achimenes are also useful and make a great display. They demand much water twice daily.

Acacias are noble, hard wooded plants, liking peat soil to grow in, and the avoidance of artificial fertilizer. Their culture is quite simple. After their blooming period is past, keep cool; cut back straggly growths and syringe gently. At the end of May they can be plunged outdoors in coal ashes to the rim of the pots.

Azaleas should be given cool treatment. Soot water is a safe stimulant. You can time them for Easter blooming, and if late, they are adaptable to extra heat for forcing.

Camellias should not be excited. Be careful to keep drainage clean. Do not feed until blooms are past. Then take off all seed pods, cut out dead twigs, clean the scale off, and apply Clay's fertilizer in a liquid form the next two months while buds are formed.

Buddlia asiatica and kindred varieties should now be in four-inch pots and grown on in a good rich compost until eight or nine-inch pots are reached in order to bloom well next November.

POTASH-MARL

(Continued from page 84)

Leaf' or Chlorosis—"The name Chlorosis, or 'Yellow Leaf,' is applied to a grape disease in which the foliage turns yellow, later becoming brown. It is common in several parts of New York State but more particularly in the Central Lake District. The cause of Chlorosis is occasioned by the presence of a large amount of lime in the soil which prevents the roots from taking up a sufficient amount of iron for satisfactory growth. Experiments show that the difficulty can be overcome by applying a small amount of iron around the affected vines and plants and where the disease has occurred two years in succession a liberal application of iron around the roots as well as around the vine."

A test was made in Westchester County to determine the value of Potash-Marl as a potato fertilizer in comparison to other high grade commercial fertilizers, using equal quantities of each. The Potash-Marl-grown potatoes showed an increase in yield of over 100%. This crop was the best crop in Westchester County in 1921 and the largest and best potatoes in the exhibit of the Stamford Horticultural Society, Stamford, Conn.

An experiment was made in 1921 by the Maplewood Country Club, Maplewood, N. J., to ascertain the efficiency of Potash-Marl as a lawn dressing. The greens treated with Potash-Marl showed a luxuriant growth and this was particularly noticeable during the long dry spell in July.

The following test was made in 1920 by D. W. Bennet, of Norwalk, Conn. Two rows of *Gladiolus* beside of two rows of same planted at the same time using the same amount of commercial fertilizer and compost and Potash-Marl and compost. The two rows planted with commercial fertilizer came up with a yellow tint. The Potash-Marl treated with a darker green foliage and the spikes or foliage was a much darker green. The flowers were more brilliant and larger.

It has been found that in using Potash-Marl that the best results have been obtained by placing it directly in contact with the seed which can be safely done as there is no danger of burning.

In addition to the advantages of being odorless, and free from weed seeds, Potash-Marl does not leach away. Any of the elements necessary to plant growth which have not been consumed by the plant remain in the ground upbuilding the soil for future crops.

It has been demonstrated in many experiments made from the year 1818 to the present time that Potash-Marl as a fertilizer for crops, lawns and flowers is deserving of consideration even by the most critical.

SOME OF THE EARLIER SPRING FLOWERS

(Continued from page 88)

naked stem arising from a rosette of root leaves is surmounted by a cluster of numerous, small white flowers.

On the warm hill slopes in April there are Pussy-Toes, *Antennaria plantaginifolia*, with downy stems and woolly leaves and silky, silvery white heads of small but extremely interesting flowers. This flower was one of the earliest loves of our early childhood, and our affection for it has never grown dim.

Near the Pussy-Toes we find another of our childhood flowers, the low-growing type of the blue Violet, *Viola cucullata*. Other Violets too are found in bloom in this fickle month of April; *Viola blanda*, the Sweet White Violet, growing in the moist meadows and swamps; *Viola rotundifolia*, the Round-Leaved Yellow Violet,

which we first saw years ago growing on the clayey bank of a brook and which we have seen in bloom only once since in a like location; *Viola lanceolata*, the Lance-Leaved Violet, growing in damp ground, having white flowers whose lower petals are penciled with purple; *Viola pubescens*, the Downy Yellow Violet, whose bright yellow flowers veined with purple we have sometimes seen in open rocky woodlands in late March; *Viola canina* variety *Muhlenbergii*, Dog-Violet, which blooms shyly in late March but in profusion in April in moist, grassy, open woodlands, and whose flowers vary in color from very light to dark blue. On the dry, sandy, sunny hillsides where the grass can barely exist there grows a Violet quite different in both flowers and foliage from the others. This is *Viola pedata*, the Bird's-Foot Violet, whose leaves are divided into many sections, and these sections again parted, and whose flowers vary in color from lilac to blue and sometimes to white. In the pretty variety of this named *bicolor*, which is much rarer than the species, the two upper petals are quite deep violet.

In the rocky, mossy, sandy soil on hill and mountain side; sometimes well down to the foot of these elevations; on the river banks or in the edges of the meadows; often in the shade of trees or shrubs, and not infrequently partly covered with the brown leaves which have fallen from the trees, we find prostrate and trailing along on the ground a little evergreen shrub which bears the sweetest scented and brightest pink flower of April. This is the Trailing Arbutus, *Epigaea repens*, which the Pilgrims called Mayflower, under which name our Whittier immortalized it in verse. The flower buds of the Trailing Arbutus are fully formed in Autumn and, protected by leaves and by snow during the Winter, burst into bloom in early Spring.

Close up to a ledge or boulder in the open country, or in a sparsely wooded ravine we find two plants whose flowers are quite different from most of those which bloom in April. The one is *Dicentra cucullaria*, Dutchman's Breeches, so called from the form of its flower, whose dainty heart-shaped white blooms tipped with yellow are borne on a scape and whose grayish green, thrice compound leaves are delicate and unusually pretty. The other is *Dicentra canadensis*, Squirrel-Corn, so called because its underground shoots bear yellow grain-like tubers. The heart-shaped blooms of this *Dicentra* are white and tipped with rose color, and its foliage closely resembles that of *D. cucullaria*.

In this same month of April in moist woodlands, growing in the clefts of the cliffs, there is another plant in flower belonging to the same order as the *Dicentras*, *Corydalis glauca*, the Pink Corydalis. The delicate pink and white flowers of this plant are borne in loose racemes and tipped with yellow, and its grayish green leaves are made up of deeply cleft leaflets with scalloped edges. This *Corydalis* continues to bloom throughout the season.

Going away from the rocky ravines and out of the woodlands into grassy places we find a dear little flower which the children all like to gather with their Violets, a flower with many common names some of which are "Innocents," "Bluets" and "Blue-Eyed Babies," but whose botanical name is *Houstonia carulea*. The flowers range in color from lilac to pale blue and sometimes to cream and have a yellow eye. They are borne on slender stems rising out of a tuft of root leaves.

Every one of these early Spring flowers and many others we have gathered in the Spring days of the years which are gone, looked upon them as objects of beauty and studied them botanically. We may not be permitted to do this again but with us the memory of these flowers ever remains.

Departments of Foreign Exchange and Book Reviews

ROSE MARÉCHAL NIEL

IN the Spring of 1870, when quite a small boy, the writer remembers going with his father one night to visit a friend who had in his greenhouse a wonderful rose in blossom, a variety which had only been "out" a few years, and was creating something of a sensation. As the night was cold we were told to make our way to the greenhouse while the owner went for a light. On opening the door we were immediately conscious of a most delicious perfume, and when the lamp was brought it revealed a room simply crowded with glorious yellow roses amid tender green foliage. Fifty years after that first introduction to Maréchal Niel no other rose has quite taken the place of this old favorite as a climber for the greenhouse.

It soon achieved a reputation as an indoor rose, and there were very few greenhouses indeed in which in the early 'seventies one was not to be found. Its productiveness, its beautiful color and form, and its delightful fragrance earned for it many admirers, and when it made its *début* in the year 1864 it marked an epoch in the rose world, crowds flocking to see it wherever it was exhibited. People who owned a greenhouse, on beholding it for the first time, were fascinated by its beauty. To see was to desire, and so it came about that for a long time Maréchal Niel held sway among roses. From the commercial standpoint it must have proved a most remunerative sort to the distributors of those days; a brisk business in the blossoms were certainly done about Easter time among nurserymen, for it was no uncommon thing to see house after house with the roofs covered with flowers.

It had not long been introduced before it began to be whispered that it was subject to canker; that it was a mistake to keep it in the house all the year, and so it came about that after it had flourished, been cut back and the new growths made, one saw this prince among roses turned out of doors for its annual airing, much the same as Azaleas and Camellias and other hard-wooded plants. That Maréchal Niel was, and is, liable to canker is a point which few who grow it to-day would dispute, but in the writer's judgment at any rate, it is largely caused through limited root-space and through over-feeding, especially where highly stimulating artificial manures are employed. In its early days many people grew it on its own root, and it was not long before the flowers were observed to be paler in color than those on the plants originally set out.

About this time some friends of ours who had suffered loss of plants through canker, obtained fresh ones, which were set in an outside border and the shoots taken through the wall and under the rafters, Vine fashion. This was followed by a larger output of blooms, and also involved more rigorous pruning after the flowering season. Another difficulty sometimes presented itself, in the debilitated state of the plant through inability to turn them out of doors for open air treatment. It was generally believed that if plants were procured on briar stocks much deeper colored flowers would result, but this could never be relied upon, although in some instances blossoms were certainly deeper in tint.

It cannot be said that Maréchal Niel was ever very popular for outdoor growing, although in certain sheltered districts to-day it is to be found growing on south walls. Its true sphere, however, is that of an indoor climber either in a house where little fire is kept or in a cold house. Outside, its flowers are not, as a rule, very freely produced or very good in size, form or color; it is when given the shelter of a roof than one sees it at its best. Splendid examples are often seen in cold houses, particularly where there is convenience for drawing the lights down on the roof or for affording abundance of air in the Summer. In a house where the conditions tend to dryness it not infrequently leads to shoots dying off, but this can be obviated to a large extent by syringing those newly planted. Another disease to which Maréchal Niel is prone is mildew; this often appears near the flowering period and is chiefly caused through ill-judged ventilation.

Possibly to-day we do not set so great a value upon this sterling sort as did gardeners of fifty years ago, and this may be accounted for by the introduction of many other climbing subjects, but if we could imagine that Maréchal Niel had to make its entrance into the rose world now would it not cause an even greater sensation than it did in the 'sixties? After all, it is unique, and one still often hears it said: "There is nothing quite like Maréchal Niel." For indoor cultivation it stands alone and has never been superseded. When well grown its half-opened buds are beautiful, its fully developed deep yellow blooms magnificent, and its foliage is a perfect setting for both, leaving nothing to be desired. To crown

all, it possesses the greatest charm which any rose can have—delicious fragrance—so sadly lacking in many more recent introductions. It is seldom seen to-day in quite the form it displayed even twenty years ago, but it is to be hoped that it will be many seasons yet before all that remains of this grand old rose is a fragrant memory.—*The Garden*.

SOME WILD ROSES

DURING the last twenty years a number of roses have been introduced from China, and although they do not command the attention bestowed on the various Hybrid Teas, they nevertheless deserve a place in every garden where space can be found for them. Wild Roses appeal to me, short though their flowering season be, for in Autumn the numerous highly colored hips produced by some species render them conspicuous and exceedingly bright at the time when most other plants are past their best. The first effect is brought about by grouping the various species in the shrubbery border, on the fringe of the wild garden, or wherever they can be allowed to ramble without much pruning. Thinning out the old growths is all the pruning they need. One of the most noteworthy is *R. Hugonis*, introduced from China by the French missionary, Peter Hugo, some twenty years ago. The single sulphur-yellow flowers, about two inches across, appear towards the end of May, the graceful arching growths being more or less clothed with blooms. The habit of the plant is semi-erect and certainly not stiff, and will attain a height of six to eight feet. It is suitable for covering large stones on the rock garden or as isolated specimens near the lawn, while it should be useful for making a hedge around a formal Rose garden. The foliage is pleasing at all times, and the flowers are followed by hips of a dark crimson color. No pruning is needed except cutting out a few of the old growths when they become crowded.

R. Willmottii.—This pretty and very distinct species was named after the well known amateur, Miss Willmott of Warley Place, and it was discovered in Western China by Messrs. Veitch's collector, Wilson, some fifteen years ago. The single rosy-carmine flowers, which are about one inch across, are freely produced during June. They are borne singly on short stems on wood of the previous year's growth. The fruits are orange-red, and the elegant foliage and arching growths add greatly to the value of a species which is quite distinct from the majority of Roses in cultivation.

R. Moyesii.—No species of hybrid of recent introduction has attracted so much attention as this delightful plant. It is quite distinct in habit, and no other Rose produces just that shade of color—it stands alone. It was first collected by Mr. A. E. Pratt about 1890 in the mountains of Szechuan at an elevation from 7,000 feet to 9,000 feet, and it was named in honor of the Rev. J. Moyes, a missionary in China. Introduced to cultivation by Messrs. Veitch in 1903, it was, when shown by them on June 9th, 1908, given an award of merit by the R.H.S. When it was exhibited by Mr. J. C. Allgrove on June 30th, 1916, it gained the coveted first-class certificate, an award thoroughly well deserved. *R. Moyesii* is quite hardy, a free grower, and will form a bush six feet to ten feet high. The flowers are about two inches across, dark red, the younger blooms being a shade of cardinal red, while an additional charm is the large cluster of tawny yellow stamens. The erect growths are covered with stout prickles, the leaves are small, and the pear-shaped orange-red hips are a decided acquisition during the Autumn months.

When *R. Moyesii* was growing at Messrs. Veitch's Coombe Wood Nursery the plants exhibited some variation in color, and the best form was figured in the *Botanical Magazine*, t. 8338. Messrs. Veitch only increased their stock from the best variety, but since the dispersal of that famous firm no doubt a number of *R. Moyesii* have been raised from seeds, and consequently inferior varieties are to be found in some gardens today.

It is increased by budding and grafting, but I think such a vigorous plant should be on its own roots, then we are not likely to be bothered with suckers. This Rose is allied to *R. macrophylla*, which is found both in China and the Himalayas.

Both *R. Moyesii* and *R. macrophylla* are at all times very noteworthy plants in the garden, but never more so than in Autumn, when their curious bottle-shaped hips change color. In *R. macrophylla* these are crowned by the very large persistent sepals. —*The Garden*.

National Association of Gardeners

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Boston, Mass.: Robert Cameron, chairman.

NEW SUSTAINING MEMBER

George P. Dike, of Chestnut Hill, Mass., recently became a sustaining member of the association.

NATIONAL ASSOCIATION AT FLOWER SHOW, NEW YORK

As announced in the February issue of THE GARDENER'S CHRONICLE, the association will have a booth at the International Flower Show which is to be staged from March 13 to 19 at the Grand Central Palace. All who desire information regarding the association and its activities or any subject pertaining to the gardening profession will find those in charge of the booth ready to answer questions. Circulars will be distributed briefly outlining the aims and purposes of the association and offering the services of the Service Bureau to any one desirous of employing experienced and reliable gardeners.

The Secretary's office will be glad to forward these circulars to members who desire to use them in an endeavor to interest their employers or neighboring gardeners in the association.

THE ASSOCIATION'S MEDALS

Several requests to include the association's medals among the awards for local horticulture shows have been received lately. The Secretary wishes to call attention to these medals, should members desire to include them among the awards for the various local societies.

The silver medal may be awarded for a meritorious exhibit at a horticultural show, local or national. The gold medal may be awarded for an unusual creation or novelty, or an especially meritorious exhibit. The only stipulation is that the medals must be won by members of the National Association of Gardeners.

APPLYING FOR A POSITION

The responses which came to the Secretary's office in answer to an advertisement placed by a member of the association in a New York newspaper and a farm magazine for a young man as vegetable assistant, and an assistant for a poultry department, were an education in themselves. Of the sixty or more applications which were received by mail, not more than ten gave the particulars of the applicant's experience as asked for in the advertisement; instead the applicants asked for further particulars of the position and then merely stated that they regarded themselves as fully qualified to fill the opening. There was a wide variation as to nationality, age, period of training, and experience, which was naturally to be expected, yet it was hardly anticipated that the advertisement would attract the attention of a man, who was by profession a musician, and whose wife was a concert harpist. They both had, as the applicant stated, grown vegetables for their own use at one time, and thought it would be an ideal arrangement if they could grow vegetables for the party in question during the day, and play at concerts during the evening. This is only one example of the many amusing answers received.

AMONG THE GARDENERS

M. C. Redlich secured the position of superintendent to E. P. Wempel, Grass Hopper Farm, Greenwich, Conn.

Charles Milburn secured the position of gardener to Valentine Bliss, Scranton, Pa.

Charles Thomas, who recently resigned his position as gardener on Dr. P. P. Satterwhite's estate, Great Neck, L. I., accepted a similar position on the Carrington estate, Denby Farms, Greenwich, Conn.

William Reeves has accepted the position of superintendent of the William Crawford estate, Monroe, N. Y.

John Davidson, recently of the F. F. Dryden estate, Bernardsville, N. J., has accepted the position of gardener to C. S. Sargent, Jr., Cedarhurst, L. I.

NEW MEMBERS

The following new members have recently been added to the association's membership: Thomas J. Roberts, Tarrytown, N. Y.; John Sutton, Katonah, N. Y.; George Lockhart, Lawrence, L. I.; J. Carroll Hawkes, Falmouth, Mass.; Robert Poole, Wickliffe, Ohio; James L. Wright, Atlanta, Ga.; Carl Burger, Spring Lake, Mich.; John L. Critchley, Darlings Lake, Nova Scotia; David Crawford, Jobstown, N. J.; Neil McAuley, Bernardsville, N. J.

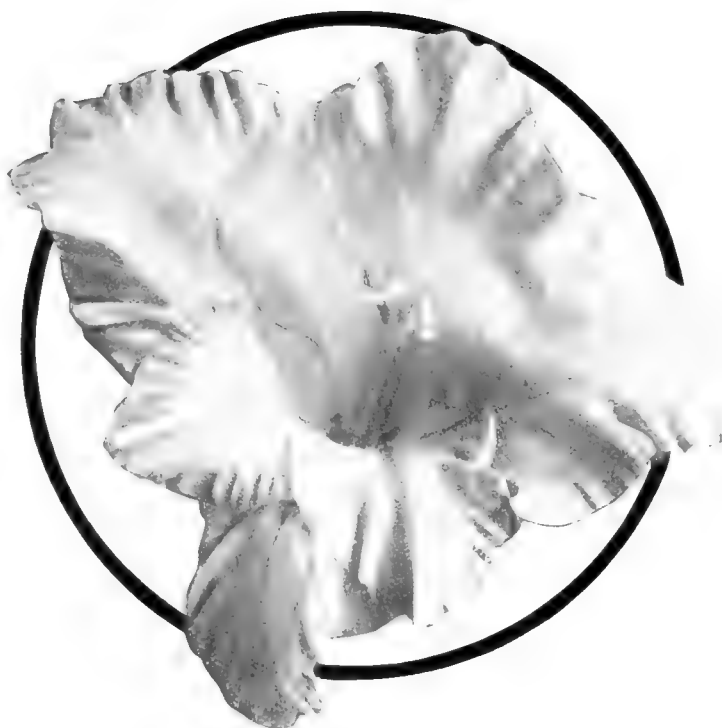
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Send for my 56 page catalog, beautifully illustrated, which is free upon request. It contains the most complete information on culture, care, storage, etc., of the *Gladiolus* ever written. I know that any lover of this beautiful flower will be proud to own a copy. Give me your full address and I shall gladly send you a copy, whether you wish to order any bulbs or not.

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Having purchased from A. E. Kunderd quite a large variety of gladioli, including many of the newest kinds, I am glad to state that every variety has been absolutely true to name. Mr. Kunderd has raised more fine varieties of gladioli than any other half dozen hybridists in America combined, and those who want the best obtainable, can make no mistake in ordering from him.—WILLIAM N. CRAIG, Superintendent of Faulkner Farm, Brookline, Mass.

LOCAL SOCIETIES

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The monthly meeting of the above society was held in our new home in the American Legion Hall, Port Chester, on Tuesday, February 14, and was well attended. A good start was made as there was one new member elected, and five applications received for membership. There were quite a number of exhibits including arums, lilies, antirrhinums, carnations, roses, tulips, mignonette, hyacinth stocks, sweet peas and *Primula malacoides*. George Hewitt was awarded first prize for pot of stocks; James Linane, second prize, vase of roses; James Stuart, third prize, four vases sweet peas. James Linane was awarded first prize for a display of vegetables.

An interesting letter was read from Mr. Troy who is at present visiting Australia. A committee was appointed to meet the heads of the various women's garden clubs with a view to co-operate in getting up a flower show this year for the benefit of the local hospitals. At the Fall show last year this society turned in about \$4,000 to the New Rochelle Hospital.

About seventy attended the second annual dinner, which was a great success. It was held on February 7, at the Lawrence Inn, Mamaroneck, Charles H. Totty acted as toastmaster in his usual efficient manner. We regret that through illness M. C. Ebel was unable to be with us. Among the speakers were A. Herrington, James Scott, W. C. Collins, Oscar Addor, Mr. Strange and others. Andrew Mitchell, of Greenwich, rendered some old Scotch ballads. Other singers were W. J. Collins and Harry Jones. Great credit is due to James Stuart and W. J. Sealey who made all arrangements for the dinner.

HARRY JONES, Cor. Sec'y.

TARRYTOWN HORT. SOCIETY

The regular monthly meeting of the above society was held in Masonic Hall, Feb. 15, with President T. Wilson presiding.

This was carnation night and brought forth a most meritorious lot of exhibits, both in quality and quantity, from far and near. A vase of Remington Red from G. Warburton & Sons, Fall River, Mass., which showed deeper color than Belle Washburn, with fine stem, was highly commended. From A. N. Pierson, Cromwell, Conn., a fine vase of improved Mrs. C. W. Ward, a lovely cerise pink, full flower, but stem rather weak, 70 points; a vase of crimson sport from Scott Bros., Elmsford, a much more pleasing color than Dagmar, which will undoubtedly make a mark in the future. J. Grant's prize for the best vase of 12 carnations was awarded to Wm. Jamieson, with a vase of Laddie, which were par excellence. A splendid vase of *Iris Tingitana* from J. Tansey, Tuxedo Park, caused considerable discussion. Mr. Tansey informed our President that fully 90 per cent of the bulbs flowered. Other exhibits, too numerous to mention, were all of high quality. Wm. Graham read a very clear, concise and instructive paper on the culture of carnations, which was well received.

J. W. Smith and A. D. Hutchinson were elected to active membership, and who, upon being presented to the craft, suitably responded.

W. G. WESTON, Rep. Sec'y.

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NORTH SHORE HORT. SOCIETY

The regular monthly meeting of the above society was held in Anderson Hall, February 13. Many members came out to hear C. Elliott of Park Ridge, Ill., talk on "The General Culture of Sweet Peas." This instructive lecture was enjoyed by all, and numerous questions were asked the speaker. Plans for a large membership, both active and associate, were discussed, and a strong campaign will be made for new members. P. W. Popp of Mamaroneck, N. Y., talked on the "Flora of Florida," as he saw it in November. A vote of thanks was accorded both speakers.

R. E. KUEHNE, Cor. Secy.

AMERICAN SWEET PEA SOCIETY

The Fourteenth Annual Exhibition and Convention of the American Sweet Pea Society is to be held on June 24th and 25th, in conjunction with the Massachusetts Horticultural Society's Exhibition in Horticultural Hall, Boston, Massachusetts.

William Gray of Newport, R. I., has been appointed secretary pro tem of this society in place of E. C. Vick, who has resigned.

Here and There

RASPBERRIES AND BLACKBERRIES

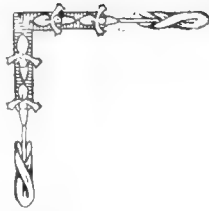
The best soil for the berries is a deep, rich, moist loam. They will not do well on wet ground, and if such a place must be used it should be well drained. It is well to use ground that has been Fall plowed, so that as soon as the ground can be worked in shape in the Spring the berries can be set out and they will begin to grow as soon as the weather gets a little warm. In this way they will have a little longer season in which to grow. Good results come, though, from work which is all done in the Spring, providing the plants are set into the ground as early as it can be well worked.

The ground should be broken deeply and pulverized well, just as though it were being prepared for a good seed bed. The best distance for planting is about six feet each way. The bushes will grow larger and more symmetrical and the berries will ripen more evenly and be larger. Some prefer planting six feet one way and three the other, but I prefer the former method, as the cultivation will be much easier and it will be easier to pick the berries.

Cultivation should begin just as soon as the plants begin to grow, or earlier if grass and weeds take a start. A light cultivator is best, but the hoe must be used sometimes to remove weeds near the plants. During the first year cultivate about once every ten days or two weeks, until the middle of July or August first. Too late cultivation keeps the plants growing and the wood does not mature sufficiently to prevent Winter killing. Mulching the plants in Winter protects them during very cold weather; it also protects the ground from heaving in the Spring, and when applied at this time, the Spring rains will soak the liquid from the manure and it will go to the roots, where it is used as food to increase, not only this year's crop but next year's growth.

Level cultivation seems best, so do not leave too much of a ridge next to the plants. It is well, after the berries are set, to level off with a hoe. During the second year they should be worked several times before fruiting-time, and if the ground is dry, it is well to cultivate during the picking season. The more moist the ground is kept, the larger and fresher will be the berries.

The plant should take on a strong, self-supporting bush form and the first year's growth should be cut back to about ten



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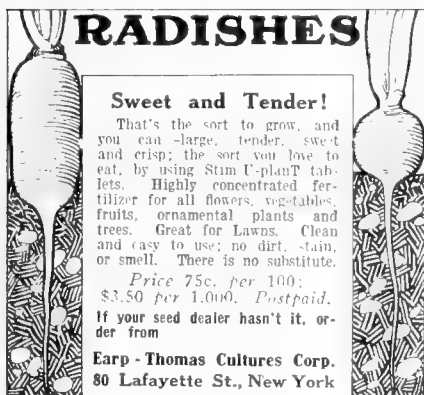
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inches from the ground; during the following years all the laterals must be cut back, leaving them about 20 or 25 inches in length. This should be done as soon as the leaves or buds start in the Spring.—*Farm Life.*

SALUTE TO THE TREES

By Henry van Dyke

Many a tree is found in the wood
And every tree for its use is good:
Some for the strength of the gnarled root,
Some for the sweetness of flower or fruit;
Some for shelter against the storm,
And some to keep the hearth-stone warm;
Some for the roof, and some for the beam,
And some for a boat to breast the stream;
In the wealth of the wood since the world began
The trees have offered their gifts to man.

But the glory of trees is more than their gifts:
'Tis a beautiful wonder of life that lifts,
From a wrinkled seed in an earth-bound clod,
A column, an arch in the temple of God,
A pillar of power, a dome of delight,
A shrine of song, and a joy of sight!
Their roots are the nurses of rivers in birth;
Their leaves are alive with the breath of the earth;
They shelter the dwellings of man; and they bend
O'er his grave with the look of a loving friend.
I have camped in the whispering forest of pines,

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Joliet, Ill.

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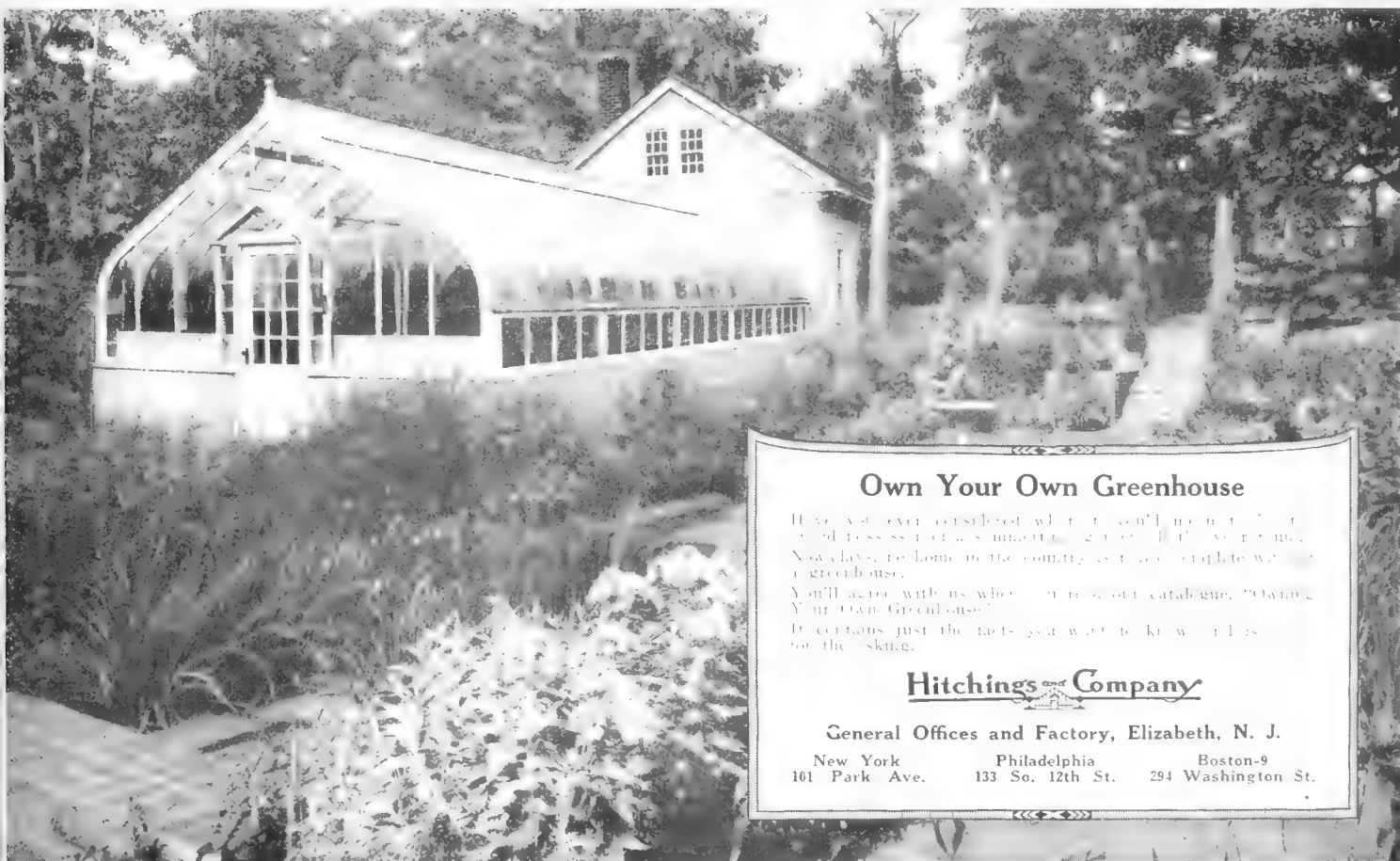
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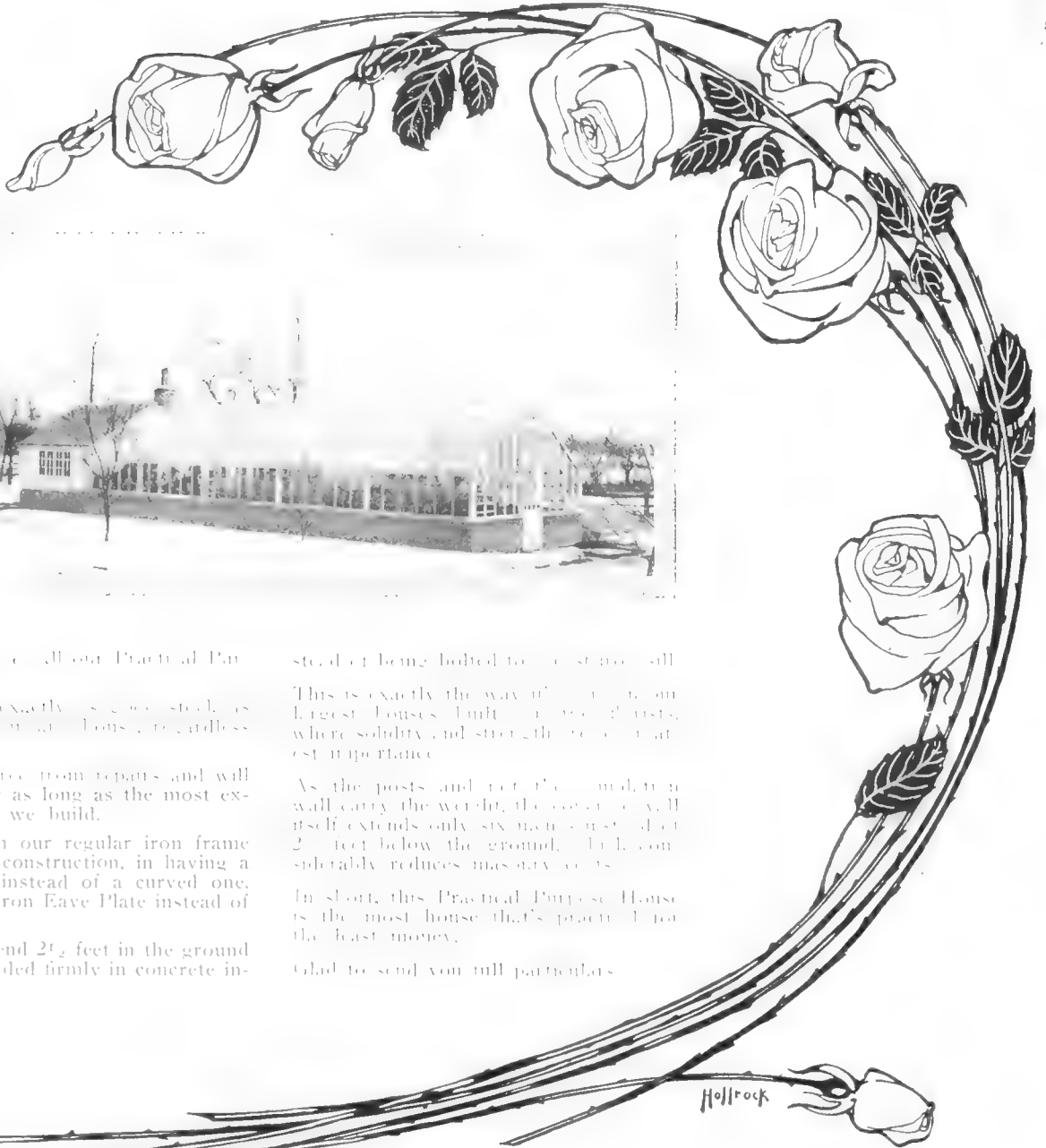
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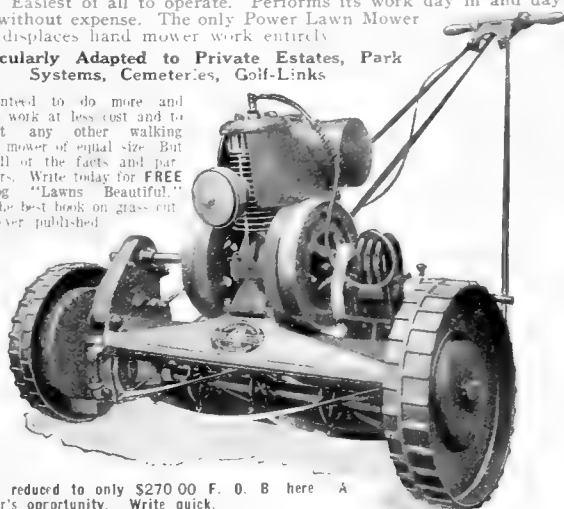
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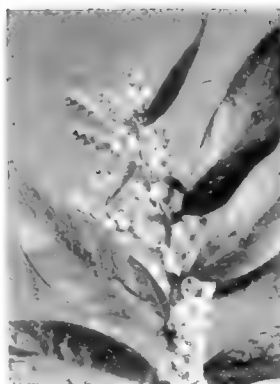
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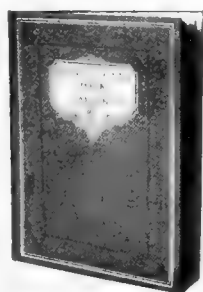
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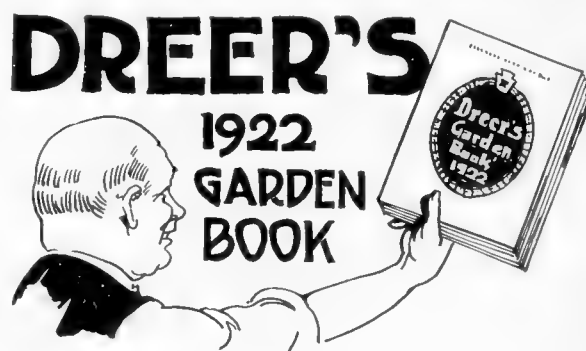
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

APRIL, 1922

No. 4

Things and Thoughts of the Garden

MONTAGUE FREE

THOSE who are interested in alpine plants may be expected to be considerably intrigued over the possibility of new floral treasures being introduced to cultivation as a result of the Mount Everest expedition. We have not seen any reference to the matter in any horticultural paper, but an item in the N. Y. *Tribune*, culled from the London *Westminster Gazette*, would indicate that the botanical side was not neglected by the expedition. According to the *Tribune*—"The Botanical specimens included a plant belonging to the pink family from a height of 20,400 feet above sea level, several kinds of *Primula*—pale yellow, blue and dark purple—and one with big hanging bells, many gentians, a remarkable yellow *pedicularis*, *delphinium*, and some beautiful dwarf rhododendrons.

"There were 116 packets of seeds—of which 18 packets are of rhododendrons, 12 of primulas, 18 of *meconopsis*, and four gentians." This is sufficient to make a connoisseur's mouth water especially when reminded of the many valuable plants from the Himalayas that now enrich our rock gardens. *Primula denticulata*, *Gypsophila cerastioides*, *Androsace Leichtlina*, *A. sarmentosa* and many other interesting alpine plants all come from that region. Then there is the remarkable *Primula Winterei* that created such a furore when it was shown at the R. H. S. Hall in London ten or eleven years ago. Its large blue flowers emerging from a rosette of handsome foliage covered with white farina were something entirely distinct from those of any other *Primula*.

It was raised by Messrs. R. Gill & Son of Penryn, Cornwall, from seeds sent them from India by a Mr. Winter. As we remember it, this species was first exhibited to the public gaze in a specially constructed wire cage in the alpine house at Kew. The plants were the property of Messrs. Gill and the Kew authorities naturally did not like the idea of having such a rarity purloined—hence the cage. A most effective display was made by the raisers at the R. H. S. fortnightly show in February, 1911, when a group of magnificent specimens, many of them a foot across, were shown emerging from a background of black velvet.

In spite of its beauty one hears nothing of *P. Winterei* now—in all probability, as with many others, because its constitution is such as can be best described by that word of the gardener that expresses so much—"miffy."

* * *

We have recently been perusing a small book published in 1842 by N. B. Ward, F. L. S., entitled "On the Growth of Plants in Closely Glazed Cases."

The horticultural world owes a debt of gratitude to Mr. Ward, for, from his experiments in growing plants under close conditions, the use of "Wardian" cases for the transportation of plants over great distances was initiated.

If it were not for this invention it is reasonably sure that the introduction to cultivation of many of the plants that now grace our gardens and greenhouses would have been long deferred. Wardian cases have also played a great part in the successful introduction of economic plants from one country to another—for example, in the transportation of Para rubber, *Hevea brasiliensis*, from the western hemisphere to the east.

In these days of easy and rapid transportation it is somewhat difficult to visualize the difficulties attendant on the importation of plants in the days when ships were dependent upon the wind for their propulsion. Voyages of six or eight months' duration were by no means uncommon. Then there was the great fluctuation in temperatures experienced during the voyage, sometimes amounting to as much as a hundred degrees, that had to be taken into consideration. Even when it was possible to ship plants in a dormant condition they would be subjected to a tremendous ordeal, and it does not occasion surprise to learn that frequently shipments of plants collected at great trouble and expense were found to be dead on arrival at their destination. Menzies, to whom the botanical and horticultural world owes so much, was unfortunate in this respect. It is recorded of Menzies' last trip around the world with Vancouver, that all of his living plant collections were lost, due to the exclusion of light from them when in transit. It was customary sometimes to have someone travel with the plants in order to care for them as far as facilities would permit, and Ward makes mention of the devotion to his charge on the part of a M. de Clieux, that is most inspiring. He says: . . . "if the voyage lasts longer than usual and the water runs short, it is not every one who has the care of plants that will imitate the example of the patriotic M. de Clieux, who, in 1717, took charge of several plants of coffee that were sent to Martinico, and approved himself worthy of the trust. The voyage being long and the weather unfavorable, they all died but one; and the whole ship's company being at length reduced to short allowance of water, this zealous patriot divided his own share between himself and the plant committed to his care, and happily succeeded in carrying it safe to Martinico, where it flourished, and was the parent stock whence the neighboring islands were supplied."

By planting the material to be shipped in moist soil (cocoanut fiber refuse is sometimes successfully used nowadays) in wooden boxes glazed with glass, well protected against possible breakage—in effect a miniature greenhouse—the hazards of shipping plants long distances were to a large extent eliminated. Ward records the successful transportation of a case of plants from Sydney, Australia, to England, "and on their arrival at the docks they were in the most healthy and vigorous condition." This, in spite of the fact that the voyage lasted eight months and that the temperatures experienced on the voyage ranged from 20 degrees when rounding Cape Horn to 120 degrees when crossing the equator.

A modern instance of plants successfully enduring a long voyage was experienced at the Brooklyn Botanic Garden on the occasion of importing a shipment of rare Cycads from Australia. These plants were shipped from Australia July 29, 1914, and received at the Garden on February 16, 1915—a period of about six and a half months. The delay in this case was not due to the causes that operated in the old days but to the exigencies of war. The ship on which they were loaded at Australia was commandeered by the Federal government for the transportation of troops and the Cycads had to wait. They were reshipped and reached Port Said, when the ship was taken over by the government and the poor Cycads again dumped. They finally reached London and after another transshipment were forwarded to New York. These plants were not packed in Wardian cases but in boxes covered with stout burlap. The fact that they were in fair condition on arrival was due not so much to the method of packing as to the tenacity of life possessed by Cycads in general.

The reason that plants in Wardian cases are enabled to thrive for long periods without attention is due, of course, to the fact that there is practically no loss of water by evaporation. That which is transpired by the plants condenses on the glass and returns again and again to the soil. The great danger to guard against in Wardian cases, whether used for transportation purposes or for ornament in the home, is that of associating rampant growers with slow growing subjects, when there is the possibility of the less aggressive plants being smothered.

* * *

It seems that it was entirely by accident that Mr. Ward hit upon the principle of growing plants under close conditions. It so happened that he had placed the chrysalis of a Sphinx in moist soil in a wide-mouthed glass bottle which was covered with a tin lid. In course of time a sporeling fern (Mr. Ward consistently speaks of *seedling* ferns and fern *seeds*) and a plant of *Poa annua* developed from the surface of the soil. These flourished in the same bottle for nearly four years without any additional water. At the end of that time they died in consequence of the lid rusting, admitting rain which presumably caused them to rot.

It was apparently no trick at all to keep various species of filmy ferns alive. (It should be remembered that Mr. Ward's experiments were conducted in smoky London.) He records that *Hymenophyllum* and some mosses were planted in a bottle and that after nine years, without any additional moisture being applied, the plants were as fresh as on the day they were enclosed.

These successes evidently inspired more ambitious undertakings and a house about 8 ft. square was built outside, one of the windows facing north. This was planted with various ferns and flowering plants such as *Linnaea borealis*, *Primula vulgaris*, *Dianthus purpurea*, *Meconopsis amurens*, *Luzula confusa* and many others, all of which succeeded well. The house was built with a perforated

pipe around the top of it by means of which the plants could be watered. Evidently when the size of the case progresses beyond a certain limit provision must be made for watering.

The "drawing room case" was interesting, containing as it did, palms, ferns, lycopodiums, cacti and aloes. One would think that it would be rather difficult to grow in one container, plants requiring such varied conditions as these, but the difficulty was overcome by planting the moisture-loving plants in the bottom of the case and suspending the succulents from a bar in the roof and compelling them to obtain all their moisture in the form of vapor. He tells of a bottle containing *Mammillaria tenuis* and two or three fleshy species of *Euphorbia*; "The plants have been enclosed four years, the mold consisting of a very sandy loam. No water has been given since they were planted and all are in a state of perfect health although now outgrowing their narrow bounds."

Roses were grown by planting small growing varieties in tubs and covering them with bell glasses, which were somewhat smaller in diameter than the tubs. These were placed out-of-doors and they received most of their water from the rain which seeped in between the jar and the edge of the tub. These continued for three years and Mr. Ward states that they required no attention other than an occasional pruning.

These experiments led to a house being constructed, heated by hot water, which approximates very closely the greenhouse as we know it today, but presumably no provision was made for ventilating the house. The range of temperature recorded in this house in the lower part is between 45 and 90 degrees and at the top between 30 and 130 degrees. A varied collection of plants was grown, such as palms, ferns, *Calathea*, *Caladium*, succulents of various kinds, orchids, and flowering plants such as *Begonia*, *Fuchsia*, and *Passion Flower*.

* * *

It is rather amazing that Wardian cases are not used to a larger extent in growing plants in dwelling houses. There is no doubt that they achieve their purpose, if intelligence is used in the selection of plants to fill them. There is similarly no doubt that they afford an opportunity of enjoying the beauty of the plants, and the interest of growing them, to people who would otherwise be entirely deprived of this pleasure.

It would seem that there are possibilities for progressive gardeners and florists in this system of growing plants. So far the only extensive use made of it is to be seen in the Fall, when fish globes, furnished with berried plants of *Mitchella repens*, the Partridge Berry, and covered tightly with glass, are sold in the stores.

Ward evidently had great expectations concerning the value and wide applicability of his invention, some of which unfortunately have never been realized. For example in the chapter "On the application of the closed plan in improving the condition of the poor," he suggests that there are numbers of people in humble circumstances in crowded cities with a passionate love for flowers that could be gratified by making use of a Wardian case. He points out that a case can be made very cheaply and that it can be furnished still more cheaply by gathering wild plants from the woods surrounding London. Evidently he cares nothing for the feelings of the "Wild Flower Preservation Society"—if such existed in his day.

He goes on to admonish the poor and chide those responsible for the creation of "fancy" or "florists" flowers in phraseology that sounds rather quaint in these days. He will bear quoting again at this point:

"But I must here caution the poor against indulging a taste for what are called fancy flowers—things which

(Continued on page 107)

Trollius—Globe-Flower

RICHARD ROTHE

TROLLIUS is a hardy herbaceous genus of the order *Ranunculaceae* with garden forms of erect medium tall growth, distinguished by dark green, palmately lobed and dissected foliage and clear yellow or orange colored, globular or semi-globular flowers. Though generally known and easy obtainable globe flowers apparently enjoy favored and liberal space only in gardens throughout the north. Being by nature denizens of the mountainous sections and frigid regions of the northern hemisphere, they are able to endure long inclement Winters well. The rich yellow and orange hues of flowering plants

ideal for radiant mass effects. *Trollius asiaticus* and *Japonicus* "Excelsior" produce flowers of a vivid deep orange, while those of the variety *caucasicus* "Orange Globe" are recognizable by their golden orange color. European firms list various distinct new hybrids of which the large deep yellow flowering "Gold Quelle" is obtainable in America.



Trollius Japonicus, "Excelsior"

tations conspicuously add in giving warmth to the brilliant northern color tonality, while garden owners in Middle Atlantic and Southern States reveling in a much great variety of blossoms are prone to overlook the singular charm of *Trollius*.

A strong single specimen, especially of the tall growing mixed hybrids, is strikingly beautiful. In Europe we find *Trollius* quite freely employed as choice bedding plants in formal gardens. They are also considered a highly effective material for hardy borders when grouped together in clumps of from 6 to 12 plants. Thriving best in a rich, sandy loam, they require an open sunny situation in the north. South of New England semi-shade is preferable. Not averse to moderate moisture, globe flowers are well adapted for brookside gardening and plantings along the shore lines of pond and lake.

Trollius europaeus producing medium sized loose globular flowers of clear yellow shade is the most widely known species. The fact that it is abounding within the middle and lower regions of the Alps suggests occasional employment for the rock-garden as being appropriate. For the northern climate shape and color of the flowers proves



Trollius used effectively in a border

Trollius are mostly raised from seed which is best planted right after ripening. Being very slow in germinating seeds procured by the trade should be always sown in flats during Fall. Exposed to frost and snow during Winter successful germination usually takes place the following Spring. For propagation of valuable hybrids, growers must rely on the slow process of division of old stock. *Trollius* require Winter protection in the north, leaf-covering to be preferred.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 106)

this year are rewarded with gold medals, and the next are thrown upon the dunghill. Believing that all human pursuits ought to be estimated in exact proportion as they tend to promote the glory of God, or the good of man, let us for a moment compare the empty chase after fancy flowers with the legitimate pursuits of horticulture and floriculture. So far from the love of God, and the good of his fellow creatures, being the end and aim of the fancy florist, he values everything in proportion as it is removed from Nature, and unattainable by the rest of mankind. 'A long time must elapse ere the world can hope to see a perfect Pansy,' says one of these fancy writers. How the world is to benefit by this Phoenix when it does arrive he will of course inform us in his next publication. Let me entreat the poor to remember that their single talent should be well employed; let them learn to estimate things according to their true value, and devote their time and attention to the legitimate pursuits of horticulture and floriculture."

It is interesting to remember, in connection with this book, that present day plant ecologists are paying great attention in their investigations to evaporation, and consider it an important factor in determining the character of the vegetation.

Growing Strawberries

FLORUM AMATOR

THE soil which will grow a good crop of corn or potatoes will produce a fair crop of strawberries, but the strawberry prefers a rich and somewhat moist soil, and a sandy loam, rather than a heavy clay, though under proper culture it gives excellent results on clay land.

Though the strawberry delights in a moist soil, nevertheless it should be planted on well drained land only. It prefers a cool location. The Strawberry bed should be away from large trees, as they rob the soil of moisture, and fertility. A southern slope with buildings on the north, is favorable, when early berries are desired; otherwise a northern or western slope is to be preferred. If early varieties are planted on a southern slope, and the mulch, of which we will speak later, is removed early, and late varieties are planted on a Northern slope, and the mulch left on late, the berry bearing period will extend over a longer season. Land on which grass or strawberries have been grown within a year or two, should not be used, because the former is frequently infested with white grubs, and the latter with strawberry diseases and insects injurious to strawberries.

Stable manure is excellent, when properly used. If it cannot be obtained, sheep manure in a pulverized state, and bone meal may be used, and to these may be added a moderate amount of wood ashes.

If the strawberries are to be set out in August or September, it is a good plan to manure the land very heavily in early Spring and plant on it a hoed crop which can be harvested in July to make room for the berry plants, after the land is spaded or plowed again, in August. If the plants are to be set out in early Spring, the same method of very heavy fertilizing and raising a hoed crop the previous season should be followed. Fresh stable manure should not be used on the land just before the plants are set. If, however, the land has not been sufficiently enriched for the previous crop, the other manures previously mentioned may be applied a part on the land before it is plowed or spaded, and a part alongside of the rows of plants later. Fresh stable manure may be spread on the land in Autumn and plowed in, the land being left rough (in the furrow), so that the frost may destroy injurious grubs, etc., and the land replowed, and the plants set in Spring. If this method is followed, the land may be plowed or spaded deep. The roots of a strawberry prefer a firm rather than a loose soil; therefore, plow or spade shallow soil about six inches and deep soil about eight inches deep. Make it fine by repeated harrowings or rakings, and then make it firm with a roller or drag so that the surface may be smooth and no hollow places beneath.

The strawberry propagates itself by means of runners, which take root, and produce plants after the blooming season. These new plants will bear fruit the next season, whether they are allowed to remain in the bed or are transplanted. These rooted runners may be transplanted in early Autumn, or far better in the north in early Spring to your new beds.

Potted plants are obtained by plunging small pots under the new runners in June and July. These pots are filled with the roots by August or September, and are detached from the old plants. These pot plants are excellent for Fall settling in the home garden. The cost is greater than for rooted-runner plants taken from the beds without pots, but they are well worth the difference in cost, and are mostly used by amateur gardeners for Summer and Autumn planting. In the Spring amateurs as well as com-

mercial strawberry growers usually set out rooted runners, but of late years sometimes potted plants, which have been wintered by strawberry plant growers in cold frames, can be bought by amateur gardeners for Spring planting also.

The rows should be 30 to 36 inches apart, and the plants 18 to 24 inches apart in the row. To raise the very largest and finest berries, keep the plants strictly in hills, so that they can be cultivated on all sides, by cutting off all the runners, and allowing no young plants to form until the plants have borne one crop at least. It is more customary, however, whether potted plants are planted in Autumn or rooted runners in Spring, to allow about four to six runners to remain on each plant, and each of these to form one new plant only and to train these, as they are forming, so that they will be arranged about the parent plant like the spokes about the hub of a wheel. Another method is to train these runners along the sides of the row instead of training them in wheel form. Whichever method is used, the work is done as follows: When a young plant forms on the runners "bed it in," that is, without detaching it from the runner; plant it where you would like it to grow, and allow no more plants to form on that runner beyond the first plant, as they will if not checked. A bed of four rows with a wider space each side of it than the space between the rows to be used as a path in picking the berries and in cultivating is convenient in garden culture.

Strawberry plants should always be set out very firmly. When rooted runners are used, select such as have formed the previous Summer and which have not borne fruit; for example, rooted runners which formed in the Summer of 1916 should be used for setting out that Fall or in the Spring of 1917. They will have long whitish roots from which it is usually better to cut off with a sharp knife an inch or so.

Strawberries are divided into two classes, namely, perfect and imperfect. The flowers of the perfect have both pistils, and stamens. The flowers of these perfect varieties will produce fruit, when grown alone or with the imperfect. The flowers of the imperfect varieties have only pistils, and will not produce fruit unless they are grown with perfect varieties. In planting imperfect varieties, a perfect variety should be planted every third row or the imperfect will not bear fruit. The reason for growing imperfect varieties is that many of these bear fruit of superior size and quality. Strawberry plant catalogs always mark the varieties as perfect and imperfect.

Strawberries should be mulched in late Autumn after the ground is frozen, to protect them in Winter and prevent them from being raised out of the soil by alternate freezing and thawing of the ground. If the mulch is allowed to remain late in Spring on the plants, it will retard the crop. In regions where the snow is usually light, the mulch is most necessary, because deep snows remaining long on the ground are a good mulch. Straw or salt hay along the coast from the tidal marshes, make the best mulch. This mulch should be raked off the plants as soon as they begin to start in Spring, and either left between the rows to keep the berries clean, or better still removed altogether, and put back between the rows and plants, after they have been cultivated once or more and before the berries appear.

Strawberry plants will continue to bear berries for five or six years, but they are usually renewed after they have borne one to three crops, and the richer the land the oftener they are renewed.

Factors to Be Considered in Breeding Water Lilies

GEORGE H. PRING

BEFORE attempting the systematic breeding of water lilies the gardener should familiarize himself with the many species and present day hybrids. The taxonomy should likewise be studied so as to be able to distinguish the main groups with their respective sub-groups. If a careful study has been given the breeder will at once be able to place the species under its distinctive section by either stamens, carpellary styles or leaf characters. In most cases the gardener overlooks the botanical characteristics as unimportant for the reason that it is too theoretical. One frequently hears men discrediting the use of botany; however, it is plainly manifested that the present day student in the profession realizes the necessity of the elements of botany in the curriculum of his studies.

In studying the taxonomy of the *Nymphaea*, we find two main groups, *Apocarpic* and *Syncarpic* referring to the arrangement of the carpels or division of the seed pod. The first group *Apocarpic* has the carpels separating one from the other within the ovary, being fused only from the central axis. This fact is easily observed in *N. gigantea* by making a cross section of the ovary, the walls dividing the ovules can readily be separated. All the species under this main group are of diurnal flowering habit ranging in color from white, pink to blue. This group is again subdivided into two sections (A) *Anecephy* which includes but one species, *N. gigantea*, native of Australia and one of the most showy of water lilies and by far the hardest to flower, where tropical Summers are lacking. The distinguishing features of this sub-group is the absence of carpellary styles, which with other species from the innermost corona of the flower indicating the division of the ovary. (B) *Brachyceras* embracing upwards of fifteen species of world-wide distribution in the tropics. This sub-group gives us the majority of the day bloomers frequently met with in aquatic collections as *capensis*, *Zanzibariensis*, *carulea* and hybrids Whitaker, Pershing, Wilson *gigantea*, Panama Pacific, *Castaliflora*, Pennsylvania, Stella Gurney, C. W. Ward and William Stone. The distinctive characters are the prominent carpellary styles of triangular shape forming a circle upon the top of the pistil which indicates the number of seed chambers within. The anthers are long, supported upon oval filaments grading down in size to where they resemble the styles.

Group (2) *Syncarpia* is the larger of the main divisions, including both tropical and temperate species of diurnal and nocturnal flowering habit. The separation

from the first is owing to the complete fusion of the carpels on all sides, whereas the *Apocarpic* carpels were separated along the side walls. The color of the flowers vary from white, rose to purple or yellow, but no blue. The group is subdivided into three. (A) *Castalia* in which all the hardy varieties are included; this, in itself is sufficient for the layman to be able to place in its respective section. The botanical characters are the petaloid stamens, being strap-shaped, terminating with short anthers, flowers usually floating. Rhizomes, somewhat different from all other species in not being protected against drought but lying dormant throughout the Winter. There are seven species found in all of the North Temperate Zone, except the Pacific Slope of North America. (B) *Lotos*, this familiar group presents the

beautiful night bloomers of our gardens. Conrad recognizes four species, *lotos*, *rubra*, *Zenkeri* and *pubescens*. The latter two I have not seen in cultivation. All the present day hybrids, including many forms, are derived from the original parentage *lotos* and *rubra*. This section is easily recognized by the vegetative characters as the prominent venation on the underside and prominently toothed edges of the leaves. In the seedling stage it is possible to place them by the elongated saggitate submerged leaves. Other factors are the large carpellary styles which are strap-shaped and bend over the pistil, the stamens are linear, wedge-shaped and rounded at the apex, not pointed as with other types. (C) *Hydrocallis* like the previous group have nocturnal flowers but instead of being supported upon stout peduncles they are floating. The notable features of this section are



Mrs. Edwards Whitaker, var. *marmorata*, presenting four flowers over one foot in diameter. (*N. A. G.* gold medal water lily.)

the unusually large club-shaped styles and the long hairs attached to the seeds. I have not seen any species under cultivation, but I understand one species *N. Rudgiana* was formally under cultivation in the Oaks Ames collection. Seeds of the group are used as food by the South Americans. It is manifested by these varied descriptions that there are several parts of the floral envelope, either of which may be used to classify the group or sub-group. The stamens are the easiest to use for placing the respective sections.

After studying the genus so as to become acquainted with the type material to-work with, the hybridist will decide to exert his energies in crossing night and day bloomers, with the object in mind of a perpetual blooming water lily. In reviewing the work of former hybridists the amateur will probably be somewhat enthused by Marliac's assertion that the red color in his noteworthy hybrids of hardy lilies was obtained from the *lotos* group *N.*

rubra. After a season spent in trying to intercross the day and night bloomers one will be rewarded with his notes indicating the pollinations, but alas: no seeds. My experiments have satisfied me that it is impossible to intercross between groups and likewise, so far, sub-groups. This is attested by many hundred crosses made at various times during the day and even at night. If we examine the hybrids to date we find all floral characters of one sub-group, whether it be under that of *Apocarpia* or *Syncarpia*, or in other words we do not find any trace of sub-group *Lotos* in Marliac's hybrids from group *Castalia* despite the fact that they both belong to *Syncarpia*. It is self-evident that the flesh color was transfused from within the same group from either the American or European varieties. Without doubt Marliac wanted to mislead his competitors, especially as he refused to reveal the parentage so as to prevent other water lily men at that time from crossing his field of activities.

We find statements that *N. gigantea* has been crossed with *Zanzibariensis*; this seems more reasonable in view of both types being day bloomers and native of the tropics. However, the proof is lacking except the coloration which is insufficient to substantiate the reason of stamens, styles, etc., being type. I have made repeated crosses between these sub-groups with apparent success, using *ovalifolia* as the pistillate parent. One pod produced seed of small size, resulting in a solitary seedling causing enthusiasm, so observations were noted accordingly. During the seedling stage the first disappointment appeared in the absence of spiral petioles as with normal *gigantea*. The floating leaves, however, suggested the staminate parent by being orbicular. Just as soon as the planting season opened, my coveted seedling was given a special corner in the pond. During the early part of July the first bud unfolded its floral envelope, revealing a light blue lily of the Whitaker strain. Now the question was, whether or not the blue color was sufficient evidence to prove *gigantea* as the pollen parent? No. It had to show other intermediate characters as a shortening of the carpellary styles or filamentose stamens which should naturally be the case through *gigantea* influence, but every part of the flower with the possible exception was type *Brachyceras*. Not being entirely satisfied I tried for additional proof by selling with its own pollen so as to carry the experiment through the second and third generation for possible reversion of type *gigantea* and likewise *ovalifolia*, the original parentage. The result gave forms of Whitaker and type *ovalifolia* but no possible indication of *gigantea* as the staminate parent. The reader no doubt is saying to himself, "Well, what happened?" The final experiment imparted that Nature had caused the minutest grain of pollen from *N. capensis* or *Zanzibariensis* either by wind or insects to come in contact with the pistil at the time of pollination. Motto: Be careful of undesirable pollen at the time of pollination.

PREPARING FLOWERS FOR POLLEN RECEPTION

It is plainly manifested that one cannot be too careful in plant breeding, especially so with those that are growing outside, giving free ingress to insects and wind. It is interesting to observe the hymenoptera visiting the expanded flowers for the purpose of collecting pollen and nectar. The insects in most cases visit the older flowers first by walking to and fro over the anthers, the pollen soon becoming agglutinated around their legs in round heads. When the fresh flowers are visited the reception afforded the insect is entirely different; we very soon find the insect in its death struggle trying to crawl out of its involuntary bath caused by the concave nectar-filled pistil preventing it from flying. The stamens are so arranged as to form a series of springs built in series and grading

down in size toward the center. Upon the opening of the flower all the stamens are perpendicular, making it possible for the insect to get a foothold of the small interior whorls. However, they only act as springs for the express purpose of repeatedly dumping the exhausted insect back into its involuntary bath until death. It is a common occurrence to find as many as half a dozen dead insects within the fertilized pistil. Nevertheless the flower is pollinated for the perpetuation of the species as Nature provided.

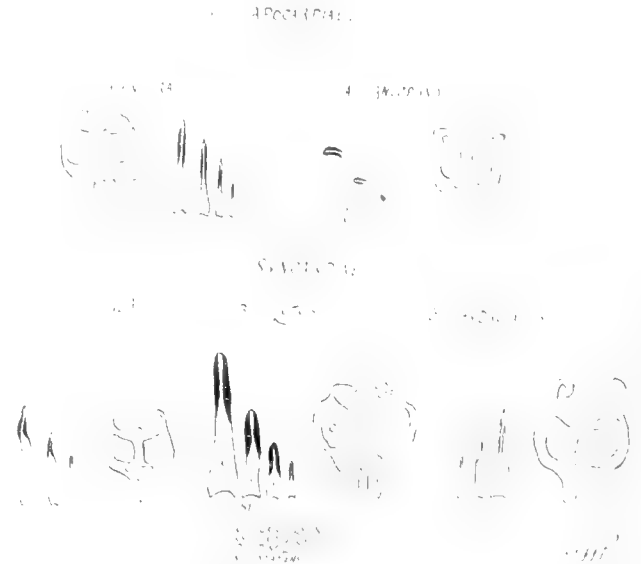


Diagram of longitudinal sections of seed pods with attached stamens, showing how the distinctive types may be recognized by either stamen or carpellary styles.

It is therefore very plain that the hybridist must be on his guard against the insect invasion of his selected flowers, and, in addition, self-pollination. To overcome the latter the seed-bearing flower should be emasculated in the bud stage by removing all stamens and attached anthers. The best time to accomplish this is at the time of flower expansion; the anthers very rarely dehisce pollen at this time. The pistil is always receptive before the shedding of pollen to prevent inbreeding. Both staminate and pistillate flowers must be covered either with waterproof bags or by the use of elastic bands to keep out pollinating insects. One cannot be too careful in this respect. I have even had insects fly into the concave pistil during the act of applying the selected pollen, immediately spoiling the cross.

OFFICIAL CATALOG OF STANDARDIZED PLANT NAMES

EXTENSION OF TIME

THE pre-publication price of \$3.50 (\$3.75 west of the Mississippi River, in Canada and abroad), is good on all orders accompanied by cash and received by May 1, 1921.

This extension of time was made necessary as it was found impossible to get out the Prospectuses to organizations in time for their members to avail of the special pre-publication price.

AMERICAN JOINT COMMITTEE ON
HORTICULTURAL NOMENCLATURE

L. H. B. McFarland, Chairman
H. K. Kelsey, Secretary

The Peony

BERTRAND H. FARR

ITS CULTIVATION

THE cultivation of peonies is so simple and their requirements so little, that, it seems to me, their very simplicity is the most difficult point to make clearly understood. People who wish to raise extra choice exhibition blooms, often make the mistake of cuddling and overfeeding, to the extent of actual injury, instead of betterment of the plants.

I know of no class of plants that will give such great returns, for so little care and labor expended on them, as peonies. Absolutely hardy everywhere, without protection, they have only to be planted in congenial soil, where they will start off for an annual circle of bloom, increasing in beauty for many years, with no further attention than an occasional cultivation of the ground around the clumps, and a top dressing of well-rotted manure applied in the late Fall, which should be raked off of the crowns in Spring, and worked into the adjacent soil. This top dressing is not necessary as a matter of Winter protection, but the peony is a gross feeder and well repays careful feeding by increased size and abundance of bloom.

It must be borne in mind, however, that manure or strong fertilizer of any kind should never be allowed to come into direct contact with the roots. The best fertilizers are well-rotted cow manure or bone meal. Hardwood ashes used as a top dressing are also beneficial, but it is far better that no fertilizer at all be used than that it be overdone.

Any good soil, where you would reasonably expect to grow a good tomato, corn or potato plant, will grow peonies. This you would not expect to do in the vicinity of large trees or shrubs whose roots permeate and appropriate all of the moisture and nourishment of the soil. We make it a rule never to replant peonies in the same ground where they have been previously grown, unless after an interval of several years. For nursery planting, an old pasture or grass field plowed down makes an ideal location, provided there is drainage sufficient to carry off surplus water, high land being preferable to low or medium land. In a heavy clay loam the roots take a longer time to reach full maturity, but the blooms are larger, colors brighter and endure longer than in a very light, sandy or shale soil, in which the blooms come earlier, fade earlier and colors are not so intense.

PROPAGATION

The only practical way of propagating varieties of peonies is by division of the roots, separating the individual roots from the crown of the clump with a strong, sharp knife, being careful to cut so that each division has from two to three strong eyes, with two or three roots, three or four inches long, large enough to support the growth of the eyes, until a system of new roots is formed. Plant so that the eyes are two or three inches below the surface (too deep planting is injurious).

Any time in the year when the ground is not frozen, peonies may be moved successfully, except from the time the buds begin to form until the foliage is matured and the new roots complete their growth, about the middle of August. The very best time is in September and early October. The growth then is fully completed, and the roots are in a dormant state. Planted then, the new feeding roots soon begin to form, and strong roots almost invariably bloom the following June. November and December planting is perfectly safe, but bloom must not be

expected the first year, and early Spring is as good a time to plant as very late Fall. If one cannot plant in September or October, it becomes merely a matter of convenience whether to plant in Fall or Spring.

When once planted, let them alone for as many years as they seem to thrive, only dividing and replanting when the plants show indications of deterioration; unless for the purpose of increasing the stock which is another matter. For the purpose of propagating, they should be divided every third year, but for garden effect peonies usually reach perfection the fourth year, continuing in good condition several years longer, and in many instances old clumps fifteen to twenty years of age continue to thrive. As a general rule, however, eight years is about the limit.

When the clumps begin to show the necessity for replanting, it is best to start again at the beginning with small divisions of clean, smooth roots with three or four eyes, forcing the plant to begin again, and form an entirely new root system. Divisions consisting of large chunks of old crowns simply lie inactive in the ground and sometimes decay entirely. It is a common mistake to purchase old, heavy clumps, with the expectation of getting immediate effect and better results. For the first year probably one may, but never thereafter.

DISEASES

The peony has always been considered singularly free from diseases or insect pests, and to all intents and purposes, as far as the amateur is concerned, this is still true. There are two troubles, however, which within the last few years have given rise to a great deal of discussion, most of which I believe has been misleading, and since scientists at a number of experiment stations where investigations have been undertaken, do not fully agree upon the nature or the cause of the trouble, and do not suggest a remedy, I will simply state my own experiences and conclusions, which I feel sure will tend to allay any needless apprehension on the part of the amateur gardener.

In certain seasons under favorable conditions peonies are subject to fungous attacks manifested first by black spots on the leaves; second, by a blighting of the buds when half-opened, or the decaying of the half-opened buds at the base of the petals, deforming the flower; third, the extension of the fungous growth down the stem, sometimes its entire length, causing what is commonly called "stem rot," which in severe cases extends down into the roots. Sometimes the stem is first affected, causing it to "damp off" and wilt. The conditions favorable to the spread of fungus seem to be moist, humid weather, with frequent showers, followed by hot sunshine. It may be quite severe one season and disappear entirely the following season, and unless the roots themselves are affected, there seems to be no permanent injury, and it is only in a few sections where serious harm has been done, and where I believe the same soil condition and overfeeding, which I have previously explained, have something to do with it. Spraying with Bordeaux mixture as a preventative has been recommended. Where roots are badly affected it is best to replant them in perfectly fresh, sweet soil, free from manure, cutting away all affected parts.

The other trouble is variously known as "Nematodes or Eel worms," "Club roots," "Lemoine Disease," etc. There has been much discussion and difference of opin-

ion regarding these so-called diseased roots. I believe it to be more a condition than a disease; a condition brought on usually, as previously stated, by the excessive use of manure when the roots are newly planted and before they can properly assimilate the overdose. It is manifested by distorted, undeveloped roots, covered with lumpy knots and nodules. An unusual number of eyes are formed, sending up many stems of weak growth, which do not mature flower buds. This condition can also be produced by too deep planting, the use of large divisions of old worn-out roots, or by planting in a sour, pasty soil, or anything which seems to check a healthy action of the roots.

My remedy is to cut the infected roots into very small divisions of one or two eyes, shorten the roots to two to three inches, and replant in perfectly fresh soil without any manure. This forces an entirely new system of root growth, and so treated, the trouble usually disappears in a year or two. Some varieties appear to be more susceptible than others, and occasionally the trouble persists for a number of years. If these happen to be cheap kinds, it is usually better to discard them and start new with clean roots; with expensive varieties, however, it pays to have a little patience with them. Practically all the novelties from Europe that have come to us from very old gardens, are affected when we first get them, and if we are to reject them on this account, we would have to forego such wonderful varieties as *Le Cygne*, *La France*, *Mont Blanc*, etc. In fact, nearly all the fine new French varieties are more or less affected when first received, but after coming from old, worn out soil, soon outgrow this trouble when planted in new ground here. Remember, you can take the smoothest, healthiest roots from one place, plant them in a sour soil over-saturated with fresh manure, and get the most beautiful specimen of club root the following year. Fortunately it is not contagious as many have claimed, for you can plant affected roots in good soil side by side with healthy ones and I have never known a single case where the healthy roots were affected by them, which convinces me that the sick plants are simply suffering from a cause similar to what we would describe as an inactive liver or a bad case of biliousness in our own system.

To sum up, fungous attacks are local, due to weather conditions, and only occasionally seriously destructive. Clubroots are due to overfeeding, improper soil or planting, and are not contagious. Cut off and burn dead foliage in the Fall and use hardwood ashes or lime as a fertilizer for acid soil, applying manure as a top dressing only until plants are in active growth.

SUCCESSION OF BLOOM

By including the various early-flowering species, hybrids and tree peonies in one's collection, the blooming season may be extended over a period of fully two months. The tree peonies bloom quite a month ahead of the *Chinensis*, beginning early in May. As they do not die to the ground each year, they form in time woody shrubs four to five feet in height, their immense, strikingly beautiful blooms sometimes a foot in diameter; They are a wonderful sight. There are color schemes among them never found in the herbaceous section, brilliant scarlets, dark maroons and rich wine colors, delicate blush, pure pink, and art shades of mauve and violet. Most of the varieties introduced by the European growers are full-double, while a large number of the Japanese sorts are semi-double and single, with a large cushion of thick golden stamens in the center, which produces a beautiful effect.

Peony *Lutea*, a deep golden yellow single tree peony was discovered a few years ago in the Mountains of

Yunnan by the Abbe Delavay. Crosses from this were made by Lemoine with other tree peonies. One of them, *La Lorraine*, was exhibited by me at the American Peony Show in Philadelphia in June, 1917, and was given a special Award of Merit. Its blooms, six inches in diameter, are fully double and are a deep yellow. A new *Lutea* hybrid now introduced to the trade is *Souvenir du Maxime Cornu*, a deeper color with a shading similar to that in the *Mme. Edward Herriot Rose*. *Lutea* and its hybrids bloom later than the other tree peonies.

The dainty fennel-leaved Peony, *P. tenuifolia*, follows the tree peonies, and its dazzlingly brilliant scarlet flowers always attract attention. It required careful cultivation and only grows about a foot high. Next in point of interest and season of bloom are Lemoine's *Wittmanniana* hybrids, produced by crossing the pale yellow Peony *Wittmanniana*, itself a rather difficult species to grow, with *P. Chinensis*, resulting in types of strong, vigorous growths, with handsome decorative foliage and large single flowers. There are four of them: *Avante Garde*, pale rose; *Le Printemps*, creamy yellow; *Mai Fleuri*, white shaded salmon; and *Messagere*, sulphur white.

The officinalis types begin to bloom almost invariably ten days before the *Chinensis* varieties. *Officinalis rubra*, the brilliant early red of our grandmothers' gardens belongs to this species; which is a native of Europe. There is a white one, *Officinalis alba plena*, and a very beautiful large flowered pink one, *Rosca superba*, besides a number of named single and double ones not commonly seen: *Sabina*, *L'Oriflamme*, *Ourika*, and *La Brillant* are very attractive. Most of the other species are of little interest to the average grower, but I have cut blooms of *Triterinata* and *Arietina* in April, and of *Rubra superba* the 27th of June, a season of quite two months.

A MARECHAL NIEL ROSE STORY

RICHARD VINCENT, JR.

IN the Spring of '68 the writer happened in a florist's store where the proprietor was unpacking a small box of Marechal Niel roses received that morning from a grower. This rose being something wonderful at that time, the receiver of the box was wonderfully pleased at being able to obtain them for a special piece of work he had on hand. In unpacking, one of the roses was broken off at the stem, which with the others was very short and they all required stemming previous to being used; it, of course, was not lost, as it could be wired and used.

The florist having no use for the particular stem or piece of wood the writer asked and received it for use, and it was duly wrapped up and carried home. As the wood was rather hard the store-keeper smiled somewhat at the writer's request, saying, "you cannot get the stem to grow," but he guessed wrong. And why? Simply that the writer had a source that he knew not of and that was a healthy *La Marque* plant with a vigorous young shoot on it, two or three of the small buds were quickly inserted into it and one of them grew. Then the whole plant was planted out in the centre of a 60 x 30 foot greenhouse into solid bed of good soil. The way that rose grew was astonishing. In a very short time the entire roof was covered with well trained wood and it was astonishing the amount of flowers cut from same. There was scarcely any time when it was growing but that a few blooms could be cut.

We generally checked its Summer growth about the time of the first hard frost by leaving the sash open so that the frost would stop the growth and then trim and start up for a Winter crop, which was always a good

(Continued on page 124)

Roses and the Rose Garden

ARTHUR SMITH

(Continued from March Issue)

CONSIDERABLE difference of opinion exists as to which are better for outdoor planting: roses on their own roots, that is raised from cuttings, or those which have been grafted or budded, or as it is termed, "worked." Worked roses give more or less trouble by throwing up suckers from the stock upon which the rose has been worked, and some people do not distinguish the difference between the rose and the suckers, with the result that the latter frequently prevent the growth of, or kill outright, the rose. The classes of roses we are considering have only five leaflets, while the growth from the stock has seven or more leaflets and has also generally more numerous thorns. If this is borne in mind there need be no difficulty in knowing which is which.

The principal reasons for deep planting are that when the junction of the rose with the stock is well covered, the latter is not so liable to send up suckers and the stem of the rose itself will often send out roots which is a decided advantage to it. Sometimes roses are worked high, that is several inches above the roots of the stock. When this is the case and the plant is set deep enough to cover the junction, the depth of the roots is greater than it should be and the death of the plant frequently results, especially with the more tender varieties upon clayey soils. On the other hand when the junction is above the ground a heavy wind may break the rose away from the stock and the same thing may occur from being knocked by a hoe or rake. Also the union may not be perfect all round and a crack between the rose and the stock will admit air and moisture which will cause decay and the ultimate death of the plant. When a rose is upon its own roots it is less liable to Winter kill, for if it should be killed to the ground, it will invariably send up new growth from below.

Apart from any of the above reasons roses on their own roots are always more permanent than grafted ones. While there is not the slightest doubt that all the more vigorous roses do thoroughly well when grown on their own roots, there are some weak varieties which give better results the first year or two when grafted. As there is, however, such an abundance of good roses which are satisfactory upon their own roots, why trouble about the others, especially as there is always more dying out among grafted or budded roses in connection with the Teas and their hybrids, than own root ones? Grafting roses is no doubt the quickest method of obtaining a presentable growth by the trade for sale, and in those cases where strong growth and large blooms are wanted for one year only this way is probably better. But the lover of roses in the garden wants something more than this, and while the now more usually used *multiflora* stock is not as bad as the *manetti*, there is no doubt that for garden purposes where permanency is required, own root roses are in every way the best. It is one thing for a commercial rose grower to want a rose plant which will produce strong blooms for a year, after which he discards the plant entirely in which place the plant's length of life is of no consequence, and quite another in connection with the owner of a rose garden who wants his roses to live and produce flowers for many years.

Another important point, especially in relation to teas and hybrid teas, is that when garden roses are on their own roots it is not necessary to plant them so deeply as is generally the case when the junction of the roses with

the stock is placed several inches below the surface of the ground. This very deep planting puts the roots into soil which in the more northern states remains at a lower temperature during the growing season, at least for a more or less extensive period, than is good for the roses, and there is no doubt that a number of the least hardy roses make poor growth and ultimately die from this cause. The making of all the beautiful roses with tea blood in them to grow on a wild stock no doubt has had as much bad effect as has been the case with the grafting of all the valuable hybrid *Rhododendrons* upon the wretched *ponticum* stock.

The general climatic conditions upon which these remarks are based are those prevalent in the more northern states. In the south, however, especially in Florida, the average garden roses, and notably the teas, do better when grafted, or at least grafting does not appear to produce harm. The soil there is always warm and in sandy districts the deeper rooting habits of the *manetti* stock is some advantage in dry hot districts.

Having planted the roses in well prepared soil, success is still further assured by continually giving proper attention to cultivation, watering, pruning, and feeding. When the soil has been deeply worked and is kept cultivated watering is rarely necessary. If it should be required, mere surface sprinkling by holding a hose in the hand is practically waste of time. So long as the soil around the roots is moist no artificial watering is required, but when this soil is dry watering must be sufficient to make it moist at least to the depth of the roots, as it is only through their roots that any plants can drink. At about the end of July the beds should have a dressing of pulverized cattle or sheep manure worked into the surface.

Roses produce their flowers upon young wood; it is therefore desirable to encourage new growth as much as possible throughout the season. As far as pruning is concerned, this encouragement can be given by keeping all the dead flowers cut off and in doing so the stalk should be cut low enough; it is sufficient to leave one bud, although very strong growers may have two buds left. As the season draws to a close, and there is no longer time enough for young growth to produce flowers, this pruning may be discontinued, or merely confined to removal of seed vessels.

The time for pruning established roses in the Spring depends upon the season and the climate. It is better done a little late than too early, and it is best to wait until danger from killing frost has passed. Hybrid perpetuals may be pruned earlier than the others and in the latitude of New York these may be operated upon about the end of March. The amount of pruning is regulated by the requirements. If the object is to obtain roses of the largest possible size, irrespective of the quantity produced, they should be cut back to two or three buds, but if a mass effect and a large number of flowers are required the last year's wood may be left as long as eighteen inches or two feet, removing weak and old wood that has no strong wood growing from it. This latter system, however, will produce flowers on weak stalks and afford few flowers worth cutting, although when viewed as a mass the effect will be good.

Teas and their hybrids should have all their good strong shoots left without shortening more than one-third of their length, and any side branches cut to two eyes, removing entirely any weak growth from the center. These

should not be pruned until the buds begin to grow.

While it is especially necessary that the above three classes of roses should be grown in special beds or in a rose garden separated from other features of the ground, there are many others which are very useful for general planting and for other purposes. At the same time if one has room enough he can have his rose garden sufficiently large to grow a selection of these latter kinds as well, and along these lines a rose garden can be made into an extremely interesting museum of roses. The shrubbery roses can be grown in the outside border and the climbers at the intersections of, or along the main walks.

Among these other classes the freest bloomers are the Polyantha or Baby Rambler class. These form dwarf spreading bushes suitable for use in the foreground of shrubbery, or in groups as part of a herbaceous perennial border. They produce their flowers in large sprays which are upon long enough stalks for cutting if soil is good and well prepared. As with all ever-bloomers they produce more flowers when flower stalks are kept removed.

Part of the shrubbery itself may well be devoted to roses. Some of the single wild ones are exquisite, and they are ornamental in Winter by reason of their red hips.

Among the shrubbery roses the Rugosa kinds are perhaps the best known as they are very good for the purpose, being always handsome even when not in flower as their dark green leathery foliage is ever fresh-looking and their extra large fruit is extremely decorative. They make new upright growth from the roots and pruning is generally confined to removing old wood and shortening the tips of the new, to make them branch freely.

Among others, the Sweet Briar, *Rosa rubiginosa*, should always have a place found for it if possible on account of the delicious fragrance from its foliage, which is especially noticeable just after a shower. This has been hybridized with other species, and while the process has increased the size of the flowers, the fragrance from the leaves has been reduced. Most of these hybrids are, however, worth growing, as they have abundant foliage which is both vigorous and healthy. They should have plenty of room as they form large spreading bushes; pruning is confined to cutting out old wood down to the ground.

The Prairie Rose, *Rosa setigera*, produces a great profusion of single pink flowers, and is very valuable for covering dry banks, trailing over rocks, etc. The Scotch Rose, *Rosa spinosissima*, is a low shrubby kind with spreading branches; the type has pink, white and yellow flowers, and some of its numerous varieties are sometimes classed as distinct species. A very handsome free-flowering species, *R. Hugonis*, a native of western China, has yellow flowers and very ornamental deep scarlet fruit. It is extremely hardy and deserves to be more widely grown.

A very hardy kind for mixed planting is the Austrian briar, *Rosa fatida* (named for the somewhat unpleasant odor from its flowers). It is not apparent why the common name of Austrian has been given it, as it is a native of China. It does best in a dry soil where it can get plenty of air. This stands very little pruning as its flowers, which vary from yellow to coppery, are borne on the ends of the old wood. This is more interesting for distinctiveness than showiness. There are other native and exotic roses of shrubby characters which, together with those mentioned, should be made more use of in general landscape planting as tending to lift the usual shrubbery from the region of commonplace, in which much of it lies.

It is a pity that so many old-time roses which used to take such an important part in beautifying the home sur-

roundings of the early settlers, roses which they brought with them from the gardens of the old country, have been practically lost from the gardens of today.

Perhaps the sweetest of all in its perfume was the old Cabbage Rose, *Rosa centifolia*, of which a woman writer said: "Its odor is perfection, it is the standard by which I compare all other fragrances." The petals of this rose were the principal base of the also lost *pot pourri*. Another old-time rose extremely rare today is the mottled York and Lancaster. It is at least as old as the sixteenth century, and Shakespeare wrote in the *Sonnets*:

"The Roses fearfully in thorns did stand
One blushing shame, another white despair,
A third, nor red, nor white, had stol'n of both."

This York and Lancaster rose, also delightful in its perfume, was known as *Rosa mundi*—the rose of the world. A plant of it is, I believe, still growing in Hawthorne's old garden at Salem, and there is another reputed to be nearly one hundred and fifty years old in the old garden at Van Cortlandt Manor. Then there was the cheerful Cinnamon Rose with its unique perfume. There were others some of which formed small bushes, and known as Fairy Roses, all of delightful perfume, and the Sweet Briar was of course never absent. But most of these are practically vanished Roses—entirely out of cultivation.

In the evolutionary process through which roses have passed certain things have been gained in roses as flowers, while other things such as perfume, beauty of plant form itself, and permanency, have been lost. Certainly our gardens, and through them, ourselves would benefit much by the restoration of the Roses of Yesterday.

"Each morn a thousand Roses brings, you say?
Yes, but where leaves the Rose of Yesterday?"
Omar Khayyam.

Varieties of Roses—apart from species—are so numerous, especially in the garden group, that it is quite impossible to enumerate all the good ones, the few mentioned being those which the writer considers the best in each class and they are with one or two exceptions, all comparatively old and well-tried kinds. New varieties are continually being produced, some of them doomed to be soon forgotten; others which may do well in one district are of little account in others; some mildew more in one locality than they do in another a few miles away, and so on. Enthusiasts naturally desire to try out and to grow new kinds, and it is interesting to have a trial bed for this purpose. If a particular variety mildews badly it is better to discard it for one less subject to this pest, as in the worst season for mildew some are more immune than others, although it may be kept in check more or less by the use of flowers of sulphur.

In the latitude of New York and higher, it seems scarcely worth while to take up much space with Tea Roses, but when they are desired the hardiest are Etoile de Lyon, yellow; Maman Cochet, silvery rose; Maman Cochet, white, and Duchess de Brabant, pink.

Hybrid teas are the most numerous and every year brings forth new varieties. The best for bedding is undoubtedly Gruss and Teplitz. It is the hardiest and strongest growing variety of this class, sometimes attaining a height of five feet. It produces great masses of crimson flowers throughout the season. Other good ones are Mrs. Aaron Ward, dark yellow; Killarney Brilliant, deep pink; Lady Hillington, yellow; Jonkeer Mock, bright pink; Radiance, brilliant rose; Mme. Jules Grolez, satiny pink; General McArthur, bright crimson; Richmond, scarlet; Mary, Countess of Hechester, crimson; President Taft, shell pink; Ophelia, salmon pink, and Kaiserin Augusta Victoria, white.

If I had space for only one hybrid perpetual, my choice would be Paul Neyron. Its flowers are the largest of all roses, they are bright shining pink, borne in great numbers and delightfully scented. The advent of hybrid teas caused many good ones of this class to go out of cultivation by the trade, but among others, the following may still be obtained and are certainly worth growing: Captain Christy, flesh color; Frau Karl Druschki, white, much beloved of rose bugs; General Jacqueminot, velvety crimson, very fragrant; Magna Charta, rosy pink; Prince Camille de Rohan, dark velvety crimson, probably the darkest color among roses, although nearly equaled by another of its class, Black Prince, which has somewhat larger flowers but not so fragrant; and George Arends, which in all respects runs a good second to Paul Neyron.

Among climbing roses no one chooses Crimson Rambler as there are plenty of others which are in every way better, and none are as much subject to mildew. If there is only room for one it might be a toss up between American Pillar and Dr. Van Fleet, both having pink flowers and are good growers, the latter being practically mildew-proof. Among the yellows, Aviateur Bleriot is the best, closely followed by Gardenia. Today the best white is no doubt Mary Lovett; the most fragrant is probably Bess Lovett, a clear bright red; both these latter were pro-

duced by the late Dr. Van Fleet. The nearest approach to ever-blooming among the climbers hardy in the more northern states, is Vondel, which has small, apple-blossom-pink flowers.

As before stated the baby rambles and polyanthas form quite a distinct class among hybrids. Their dwarf, compact habit, with the clustered masses of bloom give them a distinction all their own, and they make very showy subjects for general garden use. The four best are, Écho, light pink; Marie Pavie, flesh pink, fragrant and lasting; Catherine Zeimet, white, and Geo. Elger, yellow.

We cannot leave unmentioned the comparatively little known Bourbon class. They require the same treatment as hybrid teas and as a rule flower more freely the latter half of the season than earlier.

The two best of those generally satisfactory for shrubby purposes, Rugosas, are, apart from the original species, the hybrids, Conrad F. Myer, bright pink, and Sir Thomas Lipton, white. Both these are more continuous bloomers than the type, but they are not quite so hardy in the districts of most severe weather without good Winter mulching. As a matter of fact all roses should be well mulched with plenty of strawy manure in Winter.

Easter Lilies

BERTHA BERBERT-HAMMOND

THE decorating of the home and the church with flowers is a popular observance in the celebration of the joyful festival of the resurrection on Easter Sunday, and while many kinds of blooming plants and fresh greenery are used, lilies are by far the flowers most favored for this purpose.

The name "Easter lily" was at one time used in connection with the lovely Madonna Lily, *Lilium candidum*. Later a lily from the islands off the coast of Japan, *Lilium longiflorum formosum*, was the type of Easter lily, but at the present time, the term is by general accord used to designate *Lilium Harrisii*, the Bermuda lily, and the most desirable of white lilies which can be obtained in bloom at the proper time for the Easter celebration. In the mild climate and the peculiar soil of the Bermuda Islands, the lilies reach perfection out-doors, and millions of potted plants are annually sent to the United States in the Spring. As the voyage is only about forty hours, cut stalks in bud packed with great care and skill can readily arrive in good condition. When promptly placed in water, they will open their handsome trumpet-shaped blooms of snowy whiteness.

Undoubtedly the Bermuda lily deserves to be called the true Easter Lily. It is probably the most exquisitely beautiful and delicately perfumed of all white lilies, and by its chaste beauty and manner of growth, peculiarly fitted to awaken reverential thoughts, not only of the revival of Nature but of the spiritual sentiment and significance underlying the celebration of Easter, the "Sunday of Joy" or the "Dominica gaudi" of ancient times. Surely it may be said that

"We behold their tender buds expand;
Emblems of our own great resurrection,
Emblems of the bright and better land."

—Longfellow.

Lilium Harrisii, named after but not discovered by H. K. Harris of Philadelphia, who introduced this Bermuda lily, is considered one of our most important floral

acquisitions. It is the best of all lilies for Winter forcing and for certainty and freedom of bloom, even comparatively small bulbs sending up flowers of good size and quality, though the large sized bulbs, generally preferred for growing specimen plants for decoration or exhibition, usually produce from six to eighteen flowers three to five inches long. These large, white, trumpet-shaped flowers are fragrant and retain their beauty for days.

Another delightful thing is the fact that this superb lily can readily be forced to bloom at a desired time, so that it is possible to have beautiful flowering specimens not merely at Easter, but also for Christmas, New Year, or other special occasions during the Winter, by beginning the culture four or five months before the time when the flowers are desired. This culture consists in potting very firmly a large sized bulb in rich, friable soil and covering the bulb with at least two inches of compost. A layer of charcoal should be used at the bottom of the pot to assure perfect drainage. The potted bulb should be then well watered and set in a cool place until after four or five weeks have passed, and good roots have been established. Then the potted plants, which may or may not show evidence of top growth, should gradually be exposed to sunlight. As the growth of the green sprout advances, the plant should be given as much sunlight as possible until the buds are about to open. To secure flowers that will have lasting quality, the plant should be removed from direct sunlight and copiously watered. At no time during the forcing period should the soil be allowed to become too dry; the atmosphere of the room should also be kept moist and cool. A plant forced too rapidly in a place that is too dry and hot will become spindly in growth, a good subject for insect pests, and if it develops buds at all, they are liable to blight.

The rapidity with which *L. Harrisii* may be forced into bloom is one of the points made in its favor. However, all things considered, slow development in a cool temperature is more likely to produce stronger plants and abundant flowers of fine quality.

The International Flower Show

THE Ninth International Flower Show staged at the Grand Central Palace, New York, March 13 to 19, has passed into horticultural history as one of the most wonderful flower shows ever held. Abetted by bright and clear, in fact almost Spring-like weather, the Flower Show attracted unusual numbers of visitors each day, breaking all previous attendance records on Wednesday, when more than 9,500 people, not including ticket holders, passed through the gates.

The features of the Show were naturally the garden exhibits. Two private exhibits, each covering five hundred square feet, were located at the head of the main stairway. William Boyce Thompson, Yonkers, N. Y.; Andrew Strachan, gardener, was the winner of the first prize, with a charming garden display, the background of which was formed by tall cedars. In the center a stone figure stood above a small pool surrounded by yellow

planted with *Cypripedium spectabile*, primroses, phlox, crocus, etc.

Bobbink & Atkins' garden was indeed attractive; paths divided the lawn, and led to a charming structure on the left, trimmed with rambler roses, where a small fountain played continually. Azaleas, rhododendrons, crabs, etc., formed an enormous border in the rear, in front of which were beds of azaleas to the right and left of the paths.

A splendid display of roses was made by A. M. Pierson, Inc. In the center in front of a border of conifers, rhododendrons and other flowering shrubs, stood a summer house, over which trailed rambling roses. On both sides of the path leading to the summer house were beds of roses of various varieties, Ophelia, Mme. Butterfly, Sunburst, with several beds of polyanthus roses.

A beautiful lawn bordered by various kinds of flowering shrubs was one of the most noticeable points of the F. R.



Bobbink and Atkins' garden display, awarded a gold medal.

pansies, and to which a grass path led. A mass of blooming plants, of beautiful and widely varied colors, acacias, azaleas, rambler roses, sweet peas, hyacinths, daffodils, tulips, etc., comprised the rest of the exhibit. This garden is illustrated on our cover.

The other delightful garden display was that of Mrs. Payne Whitney, Manhasset, L. I.; George Ferguson, gardener. In the foreground was a white fence and gate, from which a path led to a sun dial. Massed on both sides of the path were lupines, daffodils, hyacinths, tulips; edging the sides were *Primula malacoides* and towards the back azaleas, lilacs, etc.

In the competitive garden displays, covering one thousand square feet each, Julius Roehrs Co. carried off first honors, winning not only a gold medal, but the Garden Club of America Sweepstake prize. Tall cedars before which were rhododendrons, lilacs, forsythias, etc., formed the background. A flag-stone path led around the rock mound, which rose in the center and upon which were planted several dwarf *taxus*. Ferns were planted along the pool that was crossed by an artistic bridge. In the foreground and on the left side were other rock beds

Pierson exhibit. A group of azaleas and spiræas was planted along the edge of the lawn and a pond of water lilies placed in one corner. At the rear a path led into a bulb garden where tulips, daffodils and hyacinths were observed. This garden was backed by an unusual stone wall.

Two other exhibits, apart from the four competitive gardens, attracted wide attention; Bobbink & Atkins rock garden, which was awarded a gold medal, and the Wadley & Smythe display. In the former, a pathway led from the front of the garden to a summer house covered with ivy. The rocks were planted with favorite plants, primroses, crocuses, lilies-of-the-valley, violas, lupines, daffodils, etc. In the Wadley & Smythe display, grass paths separated the various beds which were composed of rhododendrons, kentias, geraniums, lantanas, fuchsias, etc.

Among the many plant exhibits on the main floor the groups staged by William Boyce Thompson, Andrew Strachan, gardener, and by Samuel Untermyer, Albert Millard, superintendent, were well worthy of admiration. These groups comprised a collection of foliage plants, occupying a space of 200 square feet, among which were

included orchids. Worthy of admiration also were the group of cyclamen, remarkably fine specimens, which were shown by Mrs. F. A. Constable, James Stuart, gardener, and the group of lilies, bearing enormous blooms, which were shown by Mrs. Percy Chubb, Peter Smith, gardener. The commercial plant exhibits deserving special mention were the Henry A. Dreer collection of Kurume azaleas with their wealth of bloom and range of gorgeous colors, and the Bobbink & Atkins group of *Azalca indica*, which was given a special award.

Particularly noticeable among the orchid collections were those staged by James B. Duke, Somerville, N. J., A. Miles, gardener, showing splendid specimens of cattleyas, oncidiums, cypripediums, etc., and the collection of cut orchids of cymbidiums, cattleyas, etc., by A. N. Cooley, Pittsfield, Mass., Oliver Lines, gardener, and that of J. E. Widener, Elkins Park, Pa., William Kleinheinz, gardener. The commercial orchid exhibits were excellent, too. In the large class, Joseph Manda Company had a marvelous selection of cut blooms of cymbidium hybrids, cattleyas, cypripediums, which was awarded first prize. Both George E. Baldwin & Company, and Lager & Hurrell exhibited interesting groups of cattleyas, cypripediums and cymbidiums, the former winning the honors of this class. Julius Roehrs Company was awarded first prize for its collection of orchid plants in variety, which were arranged in a most pleasing manner.

On Monday, cut flowers were not in evidence to any

great degree, either in the private or commercial classes, the garden displays being the chief attraction of the opening day of the Flower Show. Charles H. Totty Company showed the new French rose, *Souvenir de Claudius Pernet*, in color a beautiful yellow, which created quite a sensation, as did the carnations, staged by H. B. Marinelli, which were of unusually large blooms in colors of pink, rose, blush and deep mauve. The sweet peas of W. Atlee Burpee Company, varying from shades of white, pink, lavender to salmon and crimson, also attracted much attention.

While on Tuesday there was not the keen competition in the rose classes, either private or commercial, that had been anticipated, still there was an abundance of wonderful roses to draw forth words of admiration from the many visitors to the show on that day. In the five private classes, which Mrs. McK. Twombly, Convent, N. J., Robert Tyson, gardener, entered, Mrs. Twombly was awarded first prize, showing excellent blooms of *Ophelia*, *Columbia*, *Premier*, etc. In the commercial exhibits superb blooms of the rose, *Francis Scott Key*, was shown by F. R. Pierson, and their vase of *Columbia* was also very good. Wonderful blooms of *Premier* and of *Ophelia* were staged by the Duckham-Pierson Company. Two roses in particular were the center of attraction, *Souvenir de Claudius Pernet*, for which Charles H. Totty Company received a gold medal, and *Dark Pink Columbia*, for which A. N. Pierson, Inc., received a similar award.



The rock garden, exhibited by Julius Roehrs and awarded the sweepstake prize of the Garden Club of America

The classes on Wednesday were again devoted to roses. Keen competition was displayed in the table decorations, where yellow appeared to be the predominant color. In practically every entry the exhibitor used the tall vase in the center of the table with smaller vases containing the same flowers. The first prize went to Mrs. H. McK. Twombly, who decorated with Golden Ophelia; the second to T. Aitchison, who made use of Mrs. Aaron Ward, and the third to Mrs. Payne Whitney, who used the pale yellow Ophelia. Traendly & Schenck won first honors in the commercial class with a most artistic display covering three hundred square feet. Trellises covered with ivy were used for the background; the pillars supporting the baskets and vases were banked with ferns and ivy. Noticeable among the roses shown were vases of Francis Scott Key, Crusader, Premier, White Killarney, etc. The roses staged by A. N. Pierson in their attractive display, winning second honors, were Dark Pink Columbia, Ophelia, Premier, White Killarney, Crusader, etc. The stands were set off by groups of ferns to soften the arrangement. Huge bunches of Francis Scott Key, Butterfly, Ophelia, Columbia, Crusader, etc., arranged gracefully in lovely Japanese vases, formed the F. R. Pierson rose exhibit, which was given third honors. Beneath the vases, Maidenhair and *Nephrolepis* ferns were placed, producing a charming effect.

Keen contest existed on Thursday in the carnation classes for private growers. Of the ten entries for the variety "Laddie," the judges finally selected G. G. Mason, Tuxedo Park, N. Y., D. MacGregor, gardener, as the winner of the first prize. J. E. Widener, Elkins Park, Pa., William Kleinheinz, gardener, secured first honors over his competitors with a vase of one hundred fifty blooms of Laddie. Yellow was the favored color in the carnation table decorations as with the rose on the previous day, and in this class, T. Aitchison, Mamaroneck, N. Y., held first place, using the Charles H. Totty Company "Happiness." A. C. Bedford, Glen Cove, L. I., William Miltstead, gardener, won second place over Mrs. Ridley Watts, who gave him a close contest. His decorations were "Enchantress Supreme" with asparagus and Maidenhair fern. Samuel Goddard, Framingham, Mass., led in the commercial class with a vase of one hundred blooms of Laddie, followed closely by Thomas Proctor, Topsfield, Mass., whose group was given a special award. In several classes the Springfield Floral Company scored first place, and among the varieties which they staged "Hope Henshaw" was prominent. This company was the only contestant in the large class, occupying one hundred fifty square feet, and their display was especially delightful with baskets and vases of "Laddie," "Enchantress Supreme," "Hope Henshaw," "Matchless," etc.

Friday witnessed a more lively contest in the sweet pea classes than last year. Unusually fine flowers, noticeable for their gorgeous colors, the strength of the stems and the size of the blooms, were shown by Mrs. W. Redmond Cross, Morristown, N. J., A. Sailer, gardener, to whom first prize was awarded. Mrs. W. D. Guthrie, Locust Valley, L. I., J. Winsock, gardener, who won second prize, showed excellent blooms of "Rose Queen," "Mrs. Kerr," etc. Of the seven competitors for the table decorations, Mrs. Ridley Watts, Morristown, N. J., Samuel Golding, gardener, won first honors, using "Mrs. Kerr" to excellent advantage in the charming arrangements of her table.

A large and attractively staged exhibit of sweet peas by W. Atlee Burpee Co., won first prize in the commercial class, Herman Mamitsch, Tenally, N. J., winning second honors. Among the prominent varieties used in the Burpee exhibit were Mrs. Kerr, Mrs. Warren G. Harding, Flamingo, Robin Hood, Milkmaid, the latter two being awarded special certificates of merit.

A table class of miscellaneous flowers was scheduled for Saturday, William Boyce Thompson gaining first prize with scarlet nasturtiums, pansies and genistras. A bowl of iris, pussy willows, daisies and jonquils won second honors for Mrs. Ridley Watts, certainly a delightful combination.

Following are the list of awards for the Flower Show:

Plants in Flower, Private Growers

- Acacia, 3 plants, one or more varieties.—1, Mrs. F. A. Constable (James Stuart, gdr.), Mamaroneck, N. Y.
 Acacia, specimen, any variety.—1, Mrs. F. E. Lewis (J. W. Smith, gdr.), Ridgefield, Conn.
 Amaryllis, 12 plants.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.; 2, D. Guggenheim (Thos. Leyden, gdr.), Hempstead House, Port Washington, N. Y.
 Amaryllis, 6 plants.—1, D. Guggenheim, Port Washington, N. Y.; 2, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Azalea, specimen, any color, not less than 3 ft. in diameter.—1, Jas. A. MacDonald (R. Hughes, gdr.), Flushing, L. I.; 2, Mrs. Payne Whitney (Geo. Thompson, gdr.), Manhasset, L. I.
 Azalea, 3 plants, any color.—1, Jas. A. MacDonald, Flushing, L. I.; 2, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Bougainvillea, specimen.—1, Mrs. B. G. Work (Robt. Honeyman, gdr.), Oak Knoll, Oyster Bay, L. I.; 2, Miss A. De Lamar, Pembroke Place, Glen Cove, N. Y.
 Buddlein, 3 specimens.—1, D. Guggenheim, Port Washington, N. Y.; 2, Mrs. E. F. Luckenbach, Port Washington, N. Y.
 Cacti, 12 plants, 6 plants.—1, Mrs. Wm. D. Guthrie (J. A. Winsock, gdr.), Locust Valley, N. Y.; 2, Mrs. E. F. Luckenbach, Port Washington, N. Y.
 Cineraria stellata, 6 plants.—1, W. B. Thompson (Andrew Strachan, gdr.), Yonkers, N. Y.
 Cineraria stellata, specimen, any type.—1, Mrs. E. F. Luckenbach, Port Washington, N. Y.; 2, W. B. Thompson, Yonkers, N. Y.

Prizes Offered by the Secretary of the Garden Club of America

- Cyclamen, 25 plants, arranged for effect, decorative plants permitted.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.; 2, D. Guggenheim, Port Washington, N. Y.
 Cyclamen, 6 plants.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.; 2, D. Guggenheim, Port Washington, N. Y.
 Chrysanthemum, specimen.—1, Miss A. De Lamar, Pembroke Place, Glen Cove, N. Y.
 Cytisus, specimen, any variety.—1, Mrs. Chas. Mallory (W. J. Sealey, gdr.), Port Chester, N. Y.; 2, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Fuchsia, 1 standard, specimen.—1, Mrs. Payne Whitney, Manhasset, L. I.; 2, Miss A. De Lamar, Pembroke Place, Glen Cove, N. Y.
 Geraniums, 3 specimens.—1, Miss A. De Lamar, Pembroke Place, Glen Cove, N. Y.; 2, Mrs. Walter C. Teagle (Jas. Llane, gdr.), Glen Airie, Port Chester, N. Y.
 Geranium, 1 standard, specimen.—1, N. F. & G. G. Brady Est. (Frank Heid, gdr.), Manhasset, L. I.; 2, Mrs. Walter C. Teagle, Glen Airie, Port Chester, N. Y.
 Heliotrope, 3 standard, specimens.—1, Mrs. Chas. Mallory (W. J. Sealey, gdr.), Port Chester, N. Y.
 Heliotrope, 1 standard, specimen.—1, N. F. & G. G. Brady Est., Manhasset, L. I.; 2, Mrs. Chas. Mallory, Port Chester, N. Y.
 Hydrangea, 3 plants, not less than 8-in. pots.—1, Mrs. E. F. Luckenbach, Port Washington, N. Y.; 2, W. B. Thompson, Yonkers, N. Y.
 Hydrangea, specimen, not less than 8-in. pot.—1, W. Boyce Thompson, Yonkers, N. Y.; 2, Mrs. Payne Whitney, Manhasset, L. I.
 Lilac, 6 plants.—1, Miss A. De Lamar, Pembroke Place, Glen Cove, N. Y.
 Marguerite, specimen.—1, Miss A. De Lamar, Glen Cove, N. Y.; 2, Mrs. Payne Whitney, Manhasset, L. I.
 Primula malacoides, 12 plants.—1, Mrs. E. Iselm (Duncan McIntyre, gdr.), New Rochelle, N. Y.; 2, Mrs. E. F. Luckenbach, Port Washington, N. Y.
 Primula, 12 plants.—1, Mrs. F. A. Constable, Port Washington, N. Y.; 2, Mrs. Wm. D. Guthrie, Locust Valley, N. Y.
 Primulas, 6 plants in variety.—1, Miss A. De Lamar, Glen Cove, L. I.; 2, Mrs. E. F. Luckenbach, Port Washington, N. Y.
 Rhododendron, specimen, not less than 4 ft. in diameter.—1, Mrs. Harold L. Pratt (F. O. Johnson, gdr.), Glen Cove, L. I.; 2, Mrs. Walter C. Teagle, Glen Airie, Port Chester, N. Y.

Prizes Offered by the President of the Garden Club of America

- Schizanthus, 12 plants.—1, Mrs. F. A. Constable, Port Washington, N. Y.; 2, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Schizanthus, specimen.—1, Mrs. E. F. Luckenbach, Port Washington, N. Y.; 2, Mrs. Richard C. Colt, Garrison-Hudson, N. Y.
 Spirea or Astille, 6 plants.—1, W. Boyce Thompson, Yonkers, N. Y.; 2, Mrs. E. F. Luckenbach, Port Washington, N. Y.
 Wistaria, specimen.—1, D. Guggenheim, Port Washington, N. Y.
 Any other specimen flowering plant.—1, Miss A. De Lamar, Glen Cove, N. Y.; 2, Mrs. B. G. Work (Robt. Honeyman, gdr.), Oak Knoll, Oyster Bay, L. I.
 Flowering plants covering 500 sq. ft., arranged for effect (orchids excluded), table decorations permitted.—1, W. B. Thompson, Yonkers, N. Y.; 2, Mrs. Payne Whitney, Manhasset, L. I.

Palms and Foliage Plants, Private Growers

- Acacia, 3 plants, one or more varieties.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Bougainvillea, specimen, any color, not less than 3 ft. in diameter.—1, Jas. A. MacDonald (R. Hughes, gdr.), Flushing, L. I.; 2, Mrs. Payne Whitney (Geo. Thompson, gdr.), Manhasset, L. I.
 Croton, 12 plants, broad-leaved varieties.—1, Miss A. De Lamar, Glen Cove, N. Y.
 Dracaena, 3 plants.—1, Mrs. E. F. Luckenbach, Port Washington, N. Y.; 2, W. B. Thompson, Yonkers, N. Y.; 3, Miss A. De Lamar, Glen Cove, N. Y.
 Fuchsia, 1 standard, specimen.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Kentia Belmoreana, specimen, single or bushy.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Phoenix Rocheleanii, specimen.—1, Sterling Postley (James H. Andrews, gdr.), Oyster Bay, L. I.; 2, Mrs. F. A. Constable, Mamaroneck, N. Y.
 Potted plants, 12 plants, 6 plants.—1, Mrs. F. A. Constable, Mamaroneck, N. Y.

Any specimen foliage plant, not less than 10 in. pot or tub. 1, W. Boyce Thompson, Yonkers, N. Y.; 2, Mrs. E. F. Luckenbach, Port Washington, N. Y.

Group of foliage plants, with orchids permitted, collection covering 200 sq. ft., arranged for effect.—1, W. Boyce Thompson, Yonkers, N. Y.; 2, Albert Millard, supt., Greystone, Yonkers, N. Y.

Ferns, Private Growers

Asparagus, specimen, any variety.—1, E. E. Smathers (W. D. Robertson, gdr.), Port Chester, N. Y.; 2, Miss A. De Lamar, Glen Cove, L. I.
Adiantum Farleyense, or Farleyense type, specimen.—1, Mrs. E. F. Luckenbach (Thos. Twigg, gdr.), Port Washington, N. Y.; 2, James B. Duke (A. E. Miles, gdr.), Somerville, N. J.

Adiantum any other variety, specimen.—1, E. E. Smathers; 2, Jas. A. Macdonald (R. Hughes, gdr.), Flushing, L. I.

Cibotium Scheidei, specimen.—1, D. Guggenheim (Thos. A. Leyden, gdr.), Hempstead House Estate, Port Chester, N. Y.; 2, E. E. Smathers.
Goniophlebium subauriculatum specimen.—1, Albert Millard, Greystone Estate, Yonkers, N. Y.

Stag's Horn Fern, specimen.—1, Miss A. De Lamar, Glen Cove, N. Y.; 2, Jas. A. Macdonald.

Fern, any other variety, not otherwise specified.—1, Miss A. De Lamar; 2, E. E. Smathers.

Bulbous Plants, Private Growers

Freeseas, white, 12 pots or pans.—1, Bertram H. Borden (Wm. Turner, gdr.), Rumson, N. J.; 2, Mrs. Percy Chubb (Peter Smith, gdr.), Glen Cove, N. Y.

Freeseas, colored, 6 pots or pans.—1, Mrs. Harold I. Pratt (Frank O. Johnson, supt.), Glen Cove, L. I.; 2, Mrs. Payne Whitney (Geo. Ferguson, gdr.), Manhasset, L. I.

Hyacinths, white, three 10-in. pots or pans.—1, Mrs. Payne Whitney; 2, Mrs. Percy Chubb.

Hyacinths, pink or red, three 10-in. pots or pans.—1, Jas. A. Macdonald; 2, Mrs. Payne Whitney.

Hyacinths, light blue, three 10-in. pots or pans.—1, Jas. A. Macdonald; 2, Mrs. Payne Whitney.

Hyacinths, dark blue or purple, three 10-in. pots or pans.—1, Bertram H. Borden; 2, D. Guggenheim.

Hyacinths, yellow, three 10-in. pots or pans.—1, Jas. A. Macdonald; 2, Mrs. Payne Whitney.

Lilies, 12 pots, any varieties.—1, Mrs. Percy Chubb; 2, Mrs. Harold I. Pratt.

Lily of the Valley, three 10-in. pots or pans.—1, Mrs. Payne Whitney; 2, Bertram H. Borden.

Narcissus, 6 varieties, six 10-in. pots or pans.—1, Bertram H. Borden; 2, Mrs. Harold I. Pratt.

Tulips, single early, 6 distinct varieties, six 10-in. pots or pans.—1, D. Guggenheim; 2, Mrs. Payne Whitney.

Tulips, double, in variety, six 10-in. pots or pans.—1, Mrs. Payne Whitney; 2, D. Guggenheim.

Tulips, May-day type, 6 distinct varieties, twelve 10-in. pots or pans.—1, Bertram H. Borden; 2, D. Guggenheim.

Prizes Offered by Zandbergen Bros., Valkenburg, near Leiden, Holland, and Oyster Bay, N. Y.

Tulips, Darwin, variety Duchess of Hohenburg, 10-in. pot or pan.—1, Mrs. Payne Whitney; 2, Jas. A. Macdonald.

Hyacinths, 10-in. pots or pans, 8 distinct varieties, one pot or pan of each.—1, Jas. A. Macdonald; 2, Mrs. Payne Whitney.

Orchid Plants, Private Growers

Twelve plants in variety, decorative plants permitted.—1, Arthur N. Cooley (Oliver Lines, gdr.), Pittsfield, Mass.

Prizes Offered by Mrs. N. F. Brady

Six plants in variety, decorative plants permitted.—1, Arthur N. Cooley; 2, Mrs. Harold I. Pratt.

Orchids in variety, 3 plants.—1, Arthur N. Cooley; 2, Mrs. Walter C. Teagle (James Linane, gdr.), E. Port Chester.

Brasso-Cattleya, or Brasso-Laela, 1 plant.—1, A. N. Cooley; 2, Bertram H. Borden.

Cattleya, Laelia, or Laelia-Cattleya Hybrid, 1 plant.—1, A. N. Cooley; 2, Mrs. Harold I. Pratt.

Specimen plant, any variety.—1, A. N. Cooley; 2, Mrs. Walter C. Teagle.

Special Classes

These classes are open to growers who market a portion of their product, but are not engaged exclusively in the orchid business. Exhibitors in these classes are not eligible to compete in other orchid classes.

Group of plants in variety covering 100 sq. ft., decorative plants permitted for effect.—1, James B. Duke.

Collection of Hybrids, 25 plants, decorative plants permitted.—1, James B. Duke.

Cut Orchids, Private Growers

Collection of Cut Orchids, covering 50 sq. ft., decorative greens permitted.—1, Arthur N. Cooley.

Roses in Pots and Tubs, Private Growers

Collection of Roses in variety, covering 100 sq. ft., arranged for effect.—1, W. B. Thompson (Andrew Strachan, gdr.), Yonkers, N. Y.

Roses, 6 Ramblers, any varieties.—1, W. B. Thompson, Yonkers, N. Y.

Cut Roses, Private Growers

Prizes Offered by Somerset Hills Garden Club of New Jersey

18 Columbia.—1, Mrs. H. McK. Twombly (R. Tyson, supt.), Convent Sta., N. J.; 2, Wm. D. Guthrie (Jas. A. Wincock, gdr.), Locust Valley, N. Y.

18 Premier.—1, Mrs. H. McK. Twombly.

18 Sunburst.—1, Mrs. Wm. D. Guthrie; 2, Mrs. E. F. Luckenbach.

18 Mrs. Aaron Ward.—1, Countess Mildred Hohenstein (C. I. McCormick, gdr.), Edge Hill, Pa.

18 Ophelia, or any of its sports.—1, Mrs. H. McK. Twombly.

18 Any white variety.—1, Howard Cole (W. R. Fowkes, gdr.), Madison, N. J.; 2, Mrs. Percy Chubb.

18 Any other disseminated variety, pink.—1, Jas. A. Macdonald.

18 Any other disseminated variety, yellow.—1, Mrs. H. McK. Twombly; 2, Howard Cole.

25 One or more varieties, to be shown in one vase. Open to all Varieties, Seedlings and Sports.—1, Mrs. H. McK. Twombly; 2, Mrs. Wm. D. Guthrie.

Plants in Flower, Commercial Growers

Genista, 1 plant, specimen.—Madsen & Christensen, Wood Ridge, N. J.

Genista, 3 standard, specimens.—1, Madsen & Christensen, Wood Ridge, N. J.; 2, A. L. Miller, Jamaica, N. Y.

Hydrangea, 12 plants.—1, Julius Roehrs Co., Rutherford, N. J.

Group of Azaleas, any types, covering 150 sq. ft., arranged for effect.—1, Bobbink & Atkins, Rutherford, N. J.

Special Open Class. An exhibit covering 1,000 sq. ft. This exhibit may include lawns, flower beds, gardens, shrubbery borders, Rose beds, bulb beds, or any exhibit that the artistic ability of the exhibitor may suggest, as the widest latitude will be allowed in this class. Special gold medals will also be awarded for special merit in this class.

Palms and Foliage Plants, Commercial Growers

Bay Trees, pyramidal, 2 plants.—1, Yonkers Nurseries, Inc., Yonkers, N. Y.

Bay Trees, standard, 2 plants.—1, Yonkers Nurseries, Inc.; 2, Julius Roehrs Co.

Bay Trees, columnar, 1 plants.—1, Julius Roehrs Co.

Box Trees, pyramidal, 2 plants.—1, Bobbink & Atkins.

Box Trees, bush, 2 plants.—1, Bobbink & Atkins.

Kentia Forsteriana, specimen, single or bushy.—1, Yonkers Nurseries, Inc.

Palm, other than above, specimen, single or bushy.—1, Yonkers Nurseries, Inc.; 2, Bobbink & Atkins.

Ferns, Commercial Growers

Adiantum Farleyense or its types, six plants, not less than 8-in. pots or pans.—1, A. N. Pierson, Inc., Cromwell, Conn.

Nephrolepis, specimen, any variety.—1, F. R. Pierson, Tarrytown, N. Y.

Cibotium Scheidei, specimen, not less than 12-in. pot or tub.—1, Bobbink & Atkins.

Ferns, collection, not less than 50 plants.—1, F. R. Pierson.

Fern, specimen, any other variety.—1, F. R. Pierson.

Bulbous Plants, Commercial Growers

Prizes Offered by the Rye Garden Club, G. C. A.

Lilium, 25 pots, one or more varieties.—1, F. R. Pierson; 2, A. L. Miller.

Orchid Plants, Commercial Growers

Group of plants in variety, covering 300 sq. ft., of decorative plants permitted, arranged for effect.—1, Julius Roehrs Co.

Group of 25 plants in variety, arranged for effect, greens permitted.—1, G. E. Baldwin & Co., Mamaneck, N. Y.; 2, Lager & Hurrell, Summit, N. J.

Cut Orchids, Commercial Growers

Collection of cut Orchids covering 100 sq. ft., decorative greens permitted.—1, Joseph Manda Co., West Orange, N. J.

Roses in Pots and Tubs, Commercial Growers

Climbing, red, specimen.—1, Louis Dupuy, Whitestone, N. Y.

Climbing, pink, specimen.—1, A. N. Pierson, Inc.

Climbing, yellow, specimen.—1, A. N. Pierson, Inc.

Any single variety, specimen.—1, Louis Dupuy.

Cut Roses, Commercial Growers

50 American Beauty.—1, Gule Bros. Co., 1214 F St., Washington, D. C.

100 Columbia.—1, F. R. Pierson, Tarrytown, N. Y.; 2, L. B. Coddington, Murray Hill, N. J.

100 Francis Scott Key.—1, F. R. Pierson.

100 Hadley.—1, L. B. Coddington.

100 Ophelia, or any of its sports.—1, Duckham-Pierson Co., Madison, N. J.; 2, F. R. Pierson.

100 Premier.—1, Duckham-Pierson Co.; 2, F. R. Pierson.

100 White Killarney, or any white sport of same.—1, L. B. Coddington.

50 Crusader.—1, Duckham-Pierson Co.; 2, F. R. Pierson.

50 Mrs. Aaron Ward.—1, Traendly & Schenck.

50 Pilgrim.—1, Traendly & Schenck.

50 Sunburst.—1, W. W. Vert, Madison, N. J.

50 Any other disseminated variety, yellow.—1, F. R. Pierson; 2, Traendly & Schenck.

25 Any uniseminated variety. Silver Medal. A Gold Medal will also be awarded for any new variety judged worthy of the same.—1, A. N. Pierson, Inc.; Gold Medal; 2, C. H. Totty, Inc., Gold Medal.

Display Cut Roses, Commercial Growers

Display of Cut Roses, covering 300 sq. ft. and containing not less than 500 nor more than 1,000 blooms. Decorative green of any kind, including plants, permitted. Quality of bloom, artistic arrangement and general effect and variety to be considered in making award.—1, Traendly & Schenck, Rowayton, Conn.; 2, A. N. Pierson, Inc., Cromwell, Conn.; 3, F. R. Pierson, Tarrytown, N. Y.

Dinner-table Decorations, Private Growers

Table and accessories to be furnished by Flower Show Management. Table to be set for eight. Roses the only flower to be used in this decoration.—1, Mrs. H. McK. Twombly, Convent Sta., N. J.; 2, Thomas Atchison, Mamaneck, N. Y.; 3, Mrs. Payne Whitney, Manhasset, L. I.

Special Awards for Notable Exhibits

Thomas C. Proctor, Topsfield, Mass.—100 Carnation Laddie. Silver Medal.

Miss Ida E. Bliss, Great Neck, L. I.—Salmon Salvia splendens. Certificate of Merit.

J. B. Duke, Somerville, N. J.—Cattleya Enid var. Mrs. Warren G. Harding. Silver Medal.

Joseph Manda Co., West Orange, N. J.—Cymbidium hybrid. Gold Medal.

Mrs. W. C. Teagle, Port Chester, N. Y.—Pyramid Box trees. Cultured certificate.

N. F. & G. G. Brady Estate, Manhasset, L. I.—Carnations Merveille Francaise and Le Miracle. Cultural Certificates.

Countess Mildred Hohenstein, Edge Hill, Pa.—Yellow seedling Rose. Silver Medal.

A. L. Miller, Jamaica, L. I.—Group of pot plants. Gold Medal.

B. H. Borden, Rumson, N. J.—Three spikes Cymbidium hybrids. Silver Medal.

Miss Marshall, Coe Estate, Oyster Bay, L. I.—Collection of cut Camellias. Silver Medal.

C. H. Mackay, Roslyn, N. Y.—New white Snapdragon. Certificate of Merit.

A. N. Cooley, Pittsfield, Mass.—Cattleya Cissie. Gold Medal.

(Continued on page 128)

The Fruit Garden

HOWARD N. SCARFF

OF YOU who are fortunate enough to possess your own garden, who has not felt the thrill of joy and satisfaction in the height of strawberry season to find your own vines loaded with this luscious fruit? You picked a basketful and served them with cream, or perhaps in a shortcake, for dinner, and truly you never tasted berries of such delightful freshness and such delicious flavor. They did not have that soggy, sluggish taste as those from the market which were picked several days before and which have lost their fine delicate flavor and texture from exposure to the hot sultry atmosphere. But the greatest satisfaction is not derived from this almost super-flavor of the fruit. It is the fact that you have planted the patch with the utmost care, guarded it through its infancy, keeping the soil well cultivated, and whenever spare time would permit, dealing the death blow to every weed that came into view. You have seen the plants respond to this care; you have watched the growth start with increased vigor on the addition of a little fertilizer. Then through the cold bleak months, as these little plants nestled snugly under their Winter mulch, they kept you in mild anxiety and anticipation as to what joy they might bring you for your effort spent. Now as you stand in the midst of this little garden, whose every breath is filled with the delicate aroma of the ripening fruit hanging in the clusters on the vines at your feet, you feel the fascination and joy that comes to all who have secured good results from their fruit garden.

BUSH FRUITS

Strawberries are just one of the delicacies such a garden will produce. Where space permits you will usually find a row or more of raspberries, the blackcaps with their clusters of pearly black fruit conspicuous among the green and grey of the foliage or the Reds showing dull amber in the sunlight. Many of us are staunch friends of the sturdy blackberry. Their late bearing brings them at a time when most of the other bush fruits are gone. The sweet juicy flavor of these is never so good as when just picked from the bush. Perhaps none other of the so called small fruits attracts the birds as does the blackberry; although I believe that all garden lovers are bird lovers even if the birds do steal a few of the cherished fruits. The trailing vines of the dewberry produce large juicy fruit similar to the blackberry, yet larger and sweeter and with but little core. They make an excellent sweet wine besides their fine dessert qualities, and are gaining in popularity in some sections. Currants and gooseberries were always found in the older gardens until a troublesome little worm infested the bushes stripping them of their leaves and thus resulting in an inferior crop of fruit. Now this pest can be so easily controlled with insecticides that we need never omit them from our plantings. Their culinary value for making pies and jellies cannot be overestimated.

THE EVERBEARERS

The Fall-bearing varieties of strawberries and raspberries lengthen the productive period of our gardens even until checked in the Autumn by frost. The superb and progressive strawberries seem to give the greatest satisfaction of this class and will bear both a Spring and a Fall crop, although the latter will be much better if the Spring blossoms are pinched off. Of the raspberries, St. Regis has been the standard everbearer. It produces a

Spring crop ripening nearly a week before the other varieties, continuing to bear more or less until Fall. Erskine Park, a newer variety, will produce perhaps the heaviest Autumn crop of all. The LaFrance is coming into prominence because of its strong canes and large fruit. All of these everbearing sorts are greatly improved by a little irrigation during the hot, dry, Summer months.

GRAPES AND LOGANBERRIES

Trained to the fence around the garden what could be more fitting and also more economical than a few grape vines. Most of us know grapes only from the "Concords" we buy on market, which are greatly inferior to some of the better varieties we may grow at home, such as the Worden, a large blue variety; Caco, an exceptionally good and new red, large and fine flavored; Diamond and Niagara are both fine white grapes. I do not believe any fruit is so relished when taken directly from the vine as the grape, and I will assure you they will taste doubly good to those of you who can pluck a bunch from a vine you yourself have planted and cared for. If you are fortunate enough to live in the tropical climate of the Pacific Coast you may enjoy the Loganberry of which so much has been said during the past few years, and the Himalaya berry, the finest of all bush fruits, as one grower claims. I do not believe that either of these has been grown successfully out of doors in the Middle West or in the East.

BLUEBERRIES

The U. S. Dept. of Agriculture is improving the blueberry with such success that it will only be a matter of a short time until we can have plants from these choice new varieties for our gardens. The extra large berries of almost melting sweetness are a very marked improvement over the common wild sorts.

TREE FRUITS

Let us not overlook the tree fruits. It takes a little longer to grow this class but the reward is much greater. The apple is king of all fruits and we are learning more and more of its value in our every day diet. With just a little care we can grow them just as fine as our Western boxed apples, and who would not be proud to own a half dozen or more of these trees that were loaded with perfect fruit, the result of our efforts at just odd times? Now there are the cherries, peaches, plums, pears, quinces, apricots and many others. We hardly know the value and fascination of these fruits until we have grown them ourselves, solved the sometimes perplexing problems they have presented to us, combated all of their enemies and then see these faithful trees start bearing and more than surpass our greatest expectations. There is perhaps no other fruit whose quality is lowered to such a great degree by its commercial handling as is the peach. In the first place, the commercial varieties grown must be of firm flesh to stand up under transportation without undue injury, and it happens that most of these particular varieties are far from being our finest flavored peaches. Secondly, they must be picked when still immature to prevent them from becoming over ripe before being sold to the consumer, and thus giving them a flat lifeless taste. In our gardens we may plant the sweeter, juicier varieties and allow them to soften to mellow ripeness before picking and thus get one hundred per cent of the flavor.

(Continued on page 124)

Arctic and Alpine Vegetation

WILLARD N. CLUTE

THE tilt given to the axis of our planet when it began its everlasting spin about the sun is responsible for a great deal of that variety with which life is said to be spiced. Among other things it gave us our seasons and incidentally that succession of storms and calms that we call the weather. On a globe with its axis perpendicular to the plane of its orbit, every place on its surface would receive the same length of daylight in the twenty-four hours, but the greatest intensity of light and heat would be at the equator from whence it would decrease regularly to the poles. The inclined axis of our own globe, however, makes the sun appear to travel north and south with the seasons over a region forty-seven degrees wide, at one time carrying Summer conditions far northward and at another leaving a vast region about the pole in cold and darkness while it advances Summer toward the opposite pole.

Under these conditions the vegetation near the equator enjoys perpetual Summer, interrupted only by wet and dry seasons as the sun passes with its belt of clouds, while the plants nearer the poles must adjust themselves to great changes, now exposed to the terrible cold and darkness of the long arctic night and now bathed in sunlight for weeks at a time. In latitude 70° the sun in Summer is above the horizon continuously for sixty-five days and in latitude 80° it shines uninterruptedly for one hundred and thirty-four days. The decrease in the heat and light intensity in high latitudes is compensated for, in some degree, by the greater length of daylight. At mid-Summer more heat falls on the polar regions in twenty-four hours than falls on the equator in the same time, but in spite of this the lower layers of the soil remain in the condition they were left in after the last glaciation and have never thawed out. Much of the heat that reaches the earth is used in thawing the upper layers of soil, in melting the ice and snow and in evaporating the water, so that the soil is never really warm. Evaporation, however, is not rapid and in spite of a reduced rainfall the soil over vast areas is wet or boggy. Where drainage is poor, the water stands in puddles between peaty hillocks on which the scanty vegetation grows.

A broad belt of this nature forms the northern limit of vegetation in both hemispheres and is known as tundra. In its more favorable sections it may support a plant covering of grasses and flowering plants, but elsewhere it is covered with mosses, especially peat mosses, and lichens like the "reindeer moss" (*Cladonia*) which affords food for musk oxen, reindeers and other herbivores.

The most noticeable effect that cold produces on plants is a reduction in size. The plants that inhabit cold regions are always small and compact in comparison with the same species from more hospitable lands. Great numbers of "cushion-plants" with minute leaves and short stems densely matted together are found and these, growing in close little communities, form the bloom mats so frequently mentioned in descriptions of northern countries. The flowers for the most part are large, brilliantly colored and abundant, and stem and leaves often have considerable color also. Many forms are in demand for the rock garden in milder regions. Most of the species whose common names begin with "arctic" belong to this class.

Owing to the shortness of the Summer season in high latitudes there is no succession of bloom such as we see in milder regions. When Spring comes all vegetation

pushes forth with astonishing rapidity and is soon in full leaf and flower. A remarkably small amount of heat is able to induce growth, a few degrees above the freezing point being sufficient. Frosts may occur at any time during the Summer and the plants be frozen up again and again, but such hardy specimens thaw out again and continue growth unharmed. The woody plants find it extremely difficult to survive such conditions and usually drop out long before the limits of vegetation are reached. Last to give up the struggle are the aspens, birches, alders, and willows. Reduced in stature to the size of small shrubs or undershrubs they make a brave stand but finally only the willows are left and these literally digging themselves in, with trunks under the surface, send up tiny branches with two or three leaves and a few minute flowers. In more favorable conditions large areas are covered with shrubs of the heath family, notably the Labrador tea and huckleberry as well as the heath-like crowberry.

There are no plant families that are distinctly arctic. All the species belong to families whose centers of distribution are farther south. Large deposits of coal in lands now covered with ice and snow, however, indicate that at some distant day the climate must have been very much warmer.

In milder regions mountain tops of sufficient elevation provide conditions for growth somewhat like those that prevail in the arctic lowlands and when the mountain ranges extend roughly north and south they may provide a highway over which northern plants can spread far toward the equator. In many cases the identical species that grow beyond the arctic circle may thus reach nearly or quite to the Mexican boundary. Although comparable to arctic regions as regards temperature, there are various other features of elevated regions that combine to make conditions quite different from those near the poles, and this has resulted in a number of forms that resemble northern forms but are better classed as alpine than arctic. Contrasted with arctic regions the mountain tops have a regular succession of day and night and a greater amount of light during the day. Owing to the elevation there is greatly reduced air pressure and less carbon dioxide as well as a marked change of temperature daily. The rainfall is often scanty and the absence of clouds allows a greater amount of ultra-violet light to penetrate to the earth. In spite of these differences, however, the mountain summits have much the same general features as the arctic regions. At the highest points are found mosses and lichens similar to those of the tundra and below them are the grasses, cushion-plants and bloom-mats which form the mountain meadows. Still lower come the dwarf shrubs and stunted trees known as the elfin wood close to what is called the "timber line." Near the upper limits of tree growth the vegetation consists of needle-leaved evergreen trees but lower down deciduous broad-leaved trees are found and, if in the tropics, these may merge into the broad-leaved evergreens of the rain forest. Recalling the vegetation of the earth as a whole we discover that it has many indications of zoning that suggest those of the mountains. The principal difference is that a thousand miles in latitude corresponds to a few thousand feet in altitude. Beginning with the broad-leaved forest at the equator we pass through a zone of deciduous forest to a needle-leaved evergreen belt from which we emerge into a grassland that vanishes far northward in the arctic tundra.

Work for the Month in the Garden

SAMUEL GOLDING

WITH the opening days of Spring, much work confronts the gardener on every side. Make another successional sowing of peas, which should be followed at intervals of about two weeks. Sow the main crop of onions and parsnips, salsify, some turnips, Swiss chard, more spinach and lettuce, kohlrabi, celery, cabbage, etc. Plant out from frames after they have been thoroughly hardened. All brassicas, lettuce and onions which were sown early inside may be planted into their final quarters. Some care is necessary when carrying out this operation to prevent unnecessary injury to the roots. Use a long trowel to get the roots down as far as possible, and make the soil around them quite firm. Plant out early leeks in well manured trenches. They are gross feeders, and will repay generous treatment. Some of the earliest celery can be planted out, but do not force or unduly hurry these plants as sometimes the very early sown is prone to bolt or run to seed.

Plant early potatoes. It is always advisable to change the ground for this important crop, and new seed is also an important factor in securing good yields of the tuber.

Tomatoes, egg plant, peppers and other tender vegetable plants that are growing on in the frames, should be allowed plenty of room to develop. Keep them near the glass to encourage and maintain a sturdy growth.

Give abundance of water to crops growing under glass and pay attention to proper ventilation, as the more tender seedlings are very susceptible to the sudden changes of temperature which oftentimes occur at this season. Continue to cover the sash at night until danger of frost is past.

Lose no time in finishing up new work on lawns. Grass seed sown during this month quickly germinates, and if the weather is favorable, will be well established before the hot days are here.

Any alterations, dividing and transplanting to be done in the perennial borders should be taken in hand now. This alludes to the late Summer and Fall blooming subjects. It is good practice to divide and transplant Spring blooming plants during September so that they will become established before Winter comes. Cuttings of perennials will root freely now, and the plants will bloom well later on. They are most useful for filling any vacant spaces in the borders.

The herbaceous plants are gross feeders and appreciate generous treatment. Fork in a good mulch of good farm manure.

Plant out all biennials that have wintered in the cold frames.

Prune outdoor roses; hybrid perpetuals require a more severe pruning than the teas and hybrid teas. These may have all weak and useless wood removed and should be cut back to a good eye. Plant new beds as early as possible, and prepare their quarters very deep and dig in plenty of good cow manure, making them firm after planting, and cutting them well back.

Continue to plant deciduous trees and shrubs, fruit trees, and evergreens. Cut off any damaged root with a sharp knife and cut the head well back after planting to maintain a balance between the roots and tops. See that they do not suffer from drought until they are established, then when root action is active once more.

Sow outside for late blooming, a full line of annuals: poppy, Eschscholtzia, mignonette and other kinds, which are known to resent transplanting. These should be sown where they are to bloom and thinned when they are large enough to handle, allowing enough space for the proper development of each plant.

Look over the stock of dahlia tubers and start those which are needed for propagation. When dividing the old clumps always be certain that the selected tuber has at least one eye. One can always be sure of this if the roots are started into growth before making the division.

Cannas should be started at once. They quickly respond to a little heat. Many of the new varieties are real acquisitions to the garden.

MAY

This is one of the most important months on the calendar, from the gardener's point of view, and demands for his immediate attention will be in evidence in all departments of the garden.

A full line of vegetables can be sown during the month. The earliest plants and seedlings will now be growing apace, and every effort must be made from now on to sow the seed at proper intervals to maintain that perfect succession so desirable throughout the growing season.

Stake early peas as soon as they are well above the ground. This prevents any from trailing on the soil and becoming matted by growing together, and staking is also a protection from the cold and cutting winds which often prevail during the early days of the month.

Plant all potatoes at this time.

Prepare the hills for melons, squash and cucumbers. These hills may be made about six to eight feet apart, according to the space at planter's disposal. Mix some good manure with the soil.

Lima bean poles can be placed in position. These are usually placed about four feet apart each way, and if done now will be all ready for planting with the advent of warm weather.

Sow some celery seed in the open ground for late work and also more string beans. Early sweet corn, bush lima beans and okra may be sown if climatic conditions permit. Early tomatoes may be planted out in a sheltered place, but one must use some judgment as to when to plant, as the locality and position of the particular garden has a great influence on the time of planting. It is best to be cautious regarding very early outside planting, if one should have ample facilities for protecting the plants. At this time the frame room is generally taxed to its fullest capacity, as the more tender bedding stock needs protection.

Give attention to the edging of garden paths and drives and have a good supply of stakes on hand to meet the demand which will soon be made upon them for use in the flower garden.

A friend of mine who ought to know better has many unhappy days because he hasn't sense enough to lose himself in thinking about the problems of other people. He hasn't learned the scientific truth of the statement "He that loseth his life shall find it." If you want happiness get it by forgetting about yourself in being useful to others. FORMER.

The Greenhouse, Month to Month

GEORGE F. STEWART

THE month of April is one of the busiest months of the whole year in the greenhouse, a great deal of time being used in transferring many plants, that are to be planted outdoors, to cold frames for hardening off. It is so easy to forget details, which, if neglected, will prove detrimental to fruits and plants later on. The greenhouse man should work out a daily system, as far as possible, so that daily duties may be done at certain stated periods of each day. System is a great time saver, especially when, as at the present time on account of business depression in so many lines, many places are short handed.

This month the cool greenhouse hard wood plants that have been used during March for house decoration and flower show purposes should be repotted, if they are heavily rooted in their receptacles. Some of the lighter rooting species will go a second year with a light top dressing and weekly applications of Clay's Fertilizer, while they are making their growth. I would include under this heading such plants as *acacias*, *Bauera*, *cornelia*, *chorizema*, *eristemom*, heaths, and other Spring flowering hardwood plants, known by many as "New Holland hardwood plants." A good compost for potting these plants is upland loam, for the stronger rooting sorts, with about a third of good sharp sand added. To those that have more delicate roots give equal parts of loam and peat, adding the same amount of sand, with some fine charcoal. Pot firmly and do not over-pot. Personally I never give a hardwood plant more than an inch of shift, unless it is a very coarse rooter. It shows culture to have a large plant in a small receptacle. Defer pruning, and shaping the plants until they have begun to root into the new compost. I think that they break more evenly and heal over the cuts more quickly.

Cool bulbous plants should be watched carefully to have a succession when required. We are now likely to have occasional hot days, forcing them a little faster than last month. They can be held for a long time after beginning to show color in a cool frost proof pit with a cement floor.

Specimen fuchsias and geraniums should now be growing vigorously in their flowering pots. Stimulate occasionally with fertilizer and manure water. Water at least three times with clean water between applications. Pinch the points out of the fuchsias to keep them in shape, especially on the strong growths. Allow eight weeks from the last stopping to the date they are wanted in flower. Geraniums break naturally, if the flower buds are picked off. The same length of time as stated above is required to bring them into full flower after the removal of flower buds. These notes also apply to fuchsia baskets, and ivy-leaved pelargoniums that are used for hanging in any position for decorative effect.

Single stem chrysanthemums, if large blooms are required, must be attended to, moving them along to their flowering pots as quickly as possible. Bush plants, as regards potting, should be treated as above. There must be careful stopping to keep them symmetrical, cutting any shoot that is taking the lead faster than the others.

Towards the end of April sow seeds of "herbaceous calceolaria," if one desires large specimens the following year for exhibition. One can have a nice sturdy little

plant before the hot months of Summer. It stands heat much better than those of later sowings, and when the cool Fall nights arrive, if given the proper compost, will grow like a weed.

Chinese primroses, *Primula stellata*, *Kewensis*, *Obconica*, should be sown this month, but *malacoides* will be better left until later.

Do not forget the young carnations and roses intended for benching by the end of June. Better success with the carnations, I think, can be had by pot growing until planted out on the benches. From observation and practice, the plants are more easily controlled than when planted out in the field. Insect pests may be never seen if reasonable precautions are taken, and finer and better stemmed flowers may be had when the short day arrives. Nice plants in four-inch pots are about right to plant in the carnation and rose house, about the above-mentioned period. Move them along with that end in view in a nice, airy temperature, avoiding draughts by careful ventilation.

Tropical plants such as *Allamandas*, *Ixora*, *clerodendron*, *cucharis*, anthuriums, flowering and foliage varieties, crotons, marantas, etc., are now growing vigorously. Allow each specimen plenty of space as it is then much easier to combat insects than when overcrowded on the benches. In my experience, over-crowding of plants in a humid atmosphere is ideal for the breeding of red spider. Syringe freely on all bright days; admit air freely on all days when the temperature allows it. I do not believe in the sweat box idea for these plants, as experience has proved that they will grow as well in a lower temperature than was practised in our earlier days of gardening. To keep insects in check during the rest of the season I have found that a thorough spraying with Imperial Soap Spray, according to directions, adding a wine glass of kerosene to every three gallons of the water-diluted mixture, kept well agitated during the application every two weeks, is effective. There will then be very little trouble with the usual breeds of insects. Choose a cloudy day for the operation, and even during the hot months, have a little heat in the pipes.

The early fruit houses will soon be ripening their fruit. Never syringe after the fruit begins to show color. Keep the houses good and airy. Nectarines, in my opinion, are better for forcing than peaches, as they are not so commonly grown out doors, and many people prefer the flavor of this fruit. Keep a sharp lookout for any unnecessary shoot that will not be required for next year's fruiting on any of the trees. Do not overcrowd the trellis.

Grape vines will now all be starting into growth. Disbudding must be strictly attended to. Several buds are always to be found at the end of the spur. Select the bud nearest the rod if it is stronger. Never be in a hurry to tie the shoots down to the wires as a jar of a door will often snap the shoot. One grower, I knew, maintains that nearly every grape house he has seen is wired too near the glass. His idea is that each shoot should have plenty of head room to develop until the weight of the bunch naturally brings it down to the desired position. Modern wide glass structures certainly need more air

space between the glass and the leaves than is generally seen. Scorched leaves are too commonly observed in these modern grape houses. Pinch the shoots two joints ahead of the bunch and every lateral one leaf from the shoot. Give the late grapes plenty of top air, and let the temperature rise naturally with the season. On warm days ripening fruit will take top and bottom ventilation to develop the bloom. Avoid extreme in temperature as much as possible.

Melons may be had in succession if one has ample room and time at his command; also strawberries brought in in batches every two weeks until such time as they may be had out doors. These notes are simply reminders. Every one should have an up-to-date American book on fruit culture for indoors; also another on vegetable forcing, as every year more and more demand is made for fruit and vegetables the year round.

Pot any of the Spring flowering orchids which may require it, just before the next year's growth begins to break. However, always remember that the less an orchid of the evergreen type is disturbed, the better it will thrive, providing the compost is fresh. Avoid extremely high temperature, even for *phalenopsis*, for it can be grown in a much more airy house than was believed possible in years gone by. *Cattleya Schroderae* I have grown in a carnation house up between the ridge ventilators where at night it was often 45°, very successfully for years, never changing its position Summer or Winter. Much depends on watering; and high temperature has more to do with the deterioration of these plants than anything else, especially during the Winter months. *Odontoglossums* are now flowering, and it is a pity that this most beautiful orchid dislikes our hot Summer so much. Heavily shaded with blinds raised from the glass to allow air to circulate freely, and with water running over the glass from the ridge down on all hot days, is the most successful method so far. This should be accompanied by plenty of ventilation, top and bottom. Wage a continued warfare on all insect pests on orchid plants at all times.

Love your plants. Read all you can about them, especially how they are found growing naturally. Visit your neighboring gardeners in a friendly way to compare experiences. Confess how little we really know about plants, after all our experience. Confession of ignorance is good for gardening as well as for the soul.

THE FRUIT GARDEN

(Continued from page 120)

LET YOUR TASTE BE YOUR PLANTING GUIDE

Now it is not supposed that everyone who makes an attempt at fruit gardening, either purely for pleasure or as a source of fresh fruit for the home, should try to grow all of these kinds or even a half of them. Everyone has a particular liking for some one or more of these fruits, so let this be your planting guide. Select a good rich plot of well drained soil. Then secure all the available information on these fruits and apply it accordingly. I am sure that the interest and enthusiasm that a "good start" creates will help you to overcome any problems in the care of them that may develop later.

CAREFUL ATTENTION MUST BE GIVEN

The fruit crop will not produce itself more than any other kind of a crop. In fact, I believe the fruits will respond to a little extra care more readily than others. They must receive careful cultivation, training, fertilizing and spraying when necessary. The true gardener does all these almost by instinct, while the amateur soon learns

them by actual experience. An old apple tree, standing unproductive for years, with a little proper fertilizing, etc., will usually produce a surprising amount of fruit in a couple of years. As stated before one can expect to encounter a few difficult problems, a troublesome insect or disease may cause havoc, or the vines or trees may not grow as you expected and many other things, for all of which there is a cause. It is the finding and the conquering of these that lends interest to the game, and finally, when the splendid crop is matured, it is this feeling of victory over adversities that produces an added sense of joy and satisfaction.

EVERY HOME SHOULD HAVE ITS FRUIT GARDEN

I have always maintained that where space permits every home should have its fruit as well as its vegetable garden. If we have the luscious fruit right at our own doors we are going to eat plenty of it and enjoy it very much more than the half-par products of the market. We are going to can, preserve and make jellies and jams out of the surplus and thus reap the benefits throughout the year. Where the hand labor is available dwarf trees may be used and the other fruits so arranged as to give a fine formal scheme. The floral effect at blooming time, followed by the conspicuously colored fruits, could furnish nothing more pleasing or effective in the planting arrangement.

MAKE THE GARDEN YOUR HOBBY

It is unfortunate that many people are confined indoors with their business duties most of the day. To keep in the best of health and vigor it is certainly necessary for them to spend an hour or more of each day in the open air and sunshine. Then, to furnish this outdoor recreation, a pleasant diversion, and lots of fresh fruit, why cannot they develop the fruit garden as a hobby and add both years and pleasure to their lives.

A MARECHAL NIEL ROSE STORY

(Continued from page 112)

paying crop. The writer had cut as high as five hundred at a cutting. The floor space was used for Calla lilies, which though a little taller from being shaded were nevertheless good.

When the fame of this rose productiveness got abroad a number of others undertook to grow the Marechal Niel the same way, but although they got a good surface covered with wood their crop of blooms never equaled ours. My idea always was that their being on their own roots they got the growth, etc., but the influence of the La Marque stock was what gave us the enormous quantity of blooms. I may be wrong in this, as location and treatment might have had some influence, as I have found similar action in other things.

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CLOTHING THE GROUND BENEATH TREES

IN gardens where large trees are growing the ground beneath them is too often regarded as useless, and in the consequent neglect it is frequently allowed to become more or less an eyesore. It is certainly not always easy to beautify these shady spots, especially in the case of ground beneath old Yew-trees, or similar subjects where the numerous roots occupy the whole of the surface-soil. But with proper treatment, accompanied by the necessary patience, even these unpromising places may, to a certain extent, be beautified by a suitable selection of plants. The first steps to be taken are to fork over the ground, and where the mat roots are particularly abundant put a layer of soil. To this may be added some decomposed manure or leaf-mold. Any old discarded soil from the potting-shed or elsewhere will serve the purpose quite well. It should, of course, be remembered that the innumerable tree roots are always greedily absorbing nourishment from the freshly-added compost, so that it is advisable to renew the top-dressing every twelve months, or even oftener if the occasion shall demand it.

The Butcher's Broom, when once established, is an excellent dwarf shrub for growing in hungry soils. It will stand the drip well, it does not object to shade, and it will flourish exceedingly well in time of drought. Ivy, of course, makes an ideal evergreen clothing for ground under trees, neither is it at all difficult to establish. The gold and silver variegated forms of *Euonymus radicans* may also be relied upon for the purpose under consideration. They are beautiful trailing plants, and look most attractive at any season of the year. Then there is the handsome *Berberis* (*Mahonia*) *aquifolium*. It is worth while taking special care in planting this shrub. Give it a good rooting medium to start with, and water it well in. Afterwards it will take care of itself and well repay any pains taken with it. Whether in the Spring, when the bright golden blossoms are showily asserting themselves, or in the Autumn and Winter during the period of rich leaf-coloration, this charming plant always has some special attraction. Periwinkles and St. John's Worts, too, may be freely employed to beautify the ground beneath trees, and they will both flourish in the poorest of soils without any sunshine.

Among bulbous subjects there are a few which will give a good account of themselves in the position indicated. Snowdrops and Scillas, Ornithogalums, and *Eranthis hyemalis* will all do well under trees. Special mention might be made of the lovely hardy Cyclamens. These are easily established even among the active roots of trees, and they luxuriate abundantly in the shade which the branches afford. The foliage of these little woodland gems is quite effective, while the dainty flowers last for a considerable time. The tubers should be put in just below the soil surface. These, together with the other bulbs mentioned, should be planted in bold, irregular groups, and they will multiply and spread in their own fashion and duly gladden the earth with their gay blossoms. Then, of course, there are Primroses and Pansies, while even Foxgloves may be coaxed into bloom in certain localities.

This list is not by any means a complete one, but a careful planting of those sorts mentioned will, at any rate, do much towards beautifying those spots which neglect has previously allowed to remain bare and unsightly.—*Gardening Illustrated*.

PLANTS THAT ARE PESTS

IT must, I suppose, be admitted that a plant which behaves as a pest in one soil or climate may be quite orderly and charming in another; also that a plant which is a nuisance in the rock garden may be a most desirable subject somewhere else. That being so, there must inevitably exist a number of opinions as to the moral character of various plants whose reputations have at one time or another been called in question. Notwithstanding, it is always permissible to make observations on subjects of which one personally has had painful experience; this so that those who are planting may at least take due warning.

One of the earliest of my errors in this respect was the chance planting of a root or two of the Welsh Poppy (*Meconopsis cambrica*) in some steps. This pretty thing, so admirable for woodland, has not yet been extirpated, and I doubt if it ever will, so firmly is it entrenched in the masonry, so grimly holding ground that might be occupied by something better. I am assured, however, that the beautiful bronze (single) form does not offend like the type.

Oxalis spectabilis (?), lovely in flower and foliage is even a worse pest than the Poppy, *i. e.*, in the wrong place. It spreads by underground runners, probably by seed and by begetting legions of little bulbs which, on lifting a plant, scatter all over the place and are small enough to be carried on one's boots and tools from place to place. *Oxalis spectabilis*, once you get it in a soil that it likes, is a very murrain, and on the knees of repentance have I besought it these many years to take its spawn elsewhere.

As for the creeping Linarias, I have yet to meet the one I can contemplate without distrust. *L. cymbalaria* (Kenilworth Ivy) has never had much opportunity of doing its worst here. The admirable *pallida* was put in a few years ago on the assumption that it was not a rampant colonizer, but it, alas! is also branded with the same family curse. Even pretty little *hepaticifolia* is displaying symptoms of energy which arouse suspicion, and I am not unduly fidgety in regard to these things.

Helxine Solicroli will swarm over anything with the rapidity of a fungus, but one can here rejoice in its wonderful glossy green and flowers like gold dust, knowing that a sharp frost or two will clip its wings and bring it back to moderation before another Spring. Not so *Epilobium nummularifolium*, which, though hardly so difficult to weed out, is too lively and prolific for the rock garden. Nor can I suffer gladly another of its genus, called, I think, *E. glabellum*, despite its more attractive appearance. But, whereas these only creep on the surface and sow the parish with their feathered seed, what shall one say of *Convulvulus althaeoides* (properly *C. tenuissimus*) of most catalogs? No more beautiful plant lives than this one, with its big rose-satin trumpets and finely cut, pale gray foliage. (The true leaves are green and almost exactly like those of a young Ragwort.) Yet it is the most rampaging, fighting, overwhelming weed that ever burrowed into forbidden ground. The couch-like roots know no obstacle, recognize no limitation. They will push under a gravel path or flight of steps without showing a sign until, 4 ft. or 5 ft. away, you will one day observe a little rosette of green, crinkly leaves and realize in sackcloth and ashes that *C. althaeoides* has not only "got there," but fully secured his lines of communication. Still, one cannot be too severe on a plant so lovely and one so generous with its flowers.

Oxalis corniculata rubra, I am ready to believe, may be a pleasing object where one can afford to let it have its own way, but I know nothing so difficult to get out once it is established, nothing that spreads so rampantly. It has no compensations to offer me in return for the depths of woe into which I have been cast by its unwelcome persistence. The exquisitely beautiful *Cardamine pratensis fl.-pl.* can be troublesome too, in some places, for, in forfeiting the usual means of procreation by adopting the double form, it has ingeniously devised another means of increase, *i. e.*, by layering its leaves. Thus, every lower leaf that rests on moist soil sends down a tiny rootlet from its midrib and a new plant is born. This youngster immediately follows suit, with the result that a single plant of *C. pratensis* will soon swarm over a square yard. But, again, one cannot be too hard on a plant so attractive, and its surplus offspring are easily uprooted.

Some of the *Cotulas*, *squalida* to wit, will give trouble if allowed too much license, and *Acana Nova Zeelandiae* is not only too boisterous for a rock garden of moderate size, but its burrs are an intolerable nuisance. For these reasons the latter has been banished, and the old Red Valerian (*Centranthus rubra*) has also had to go, even the one clump which for long was spared and suffered for the sake of the butterflies. With *Crucianella stylosa* one must also be careful, for it is often much too vigorous for the rock garden and a plant that cannot be dislodged without removing the stones which it enmeshes.

The old St. John's Wort (*Hypericum calycinum*) would hardly be planted in the rock garden by the simplest of tyros, but as there are doubtless some who may be tempted to put it in as a carpeting for shrubs, I can advise them to make sure that it is kept at a safe distance. An average path, for example, will not keep this pushful plant within bounds, nor will a stone wall. Its hydra-headed root-stems are more difficult to stop than those of any other plant with which I am acquainted, the wild white *Convolvulus* not excepted, and for having given it too much quarter in the past we are being punished by *H. calycinum* no less indignantly than the indiscreet deserve.—*The Garden*.

To read without reflecting is like eating without digesting.—*Edmund Burke*.

FRAGRANT ROSES

When one asked to name the most striking characteristic of the newer Roses, the answer must be in one word—"color." Since M. Pernet-Ducher introduced Madame Edouard Herriot (the so-called *Daily Mail* Rose) in 1912, Rose lovers have enjoyed a wonderful period of progress in this respect. So much so that our French friends appear to have relegated form and everything else to the background in order to worship color exclusively. In our own countries the long-established English standard of form in flowers has saved us from this extreme; however one may admire, for example, the saw-edged flowers of the American carnation, it must be admitted that the smooth-petalled flower by the British florist has an unequalled charm and beauty. The maintenance of too close an adherence to any particular convention of the kind would, however, be a bar to progress. Twenty years ago no rose hybridiser would have dreamt of retaining the Padres, Red Letter Days, K. of Ks., Isobels or other semi-single or single-flowered roses found amongst his seedlings in the flowering season. Such are disappointing to those who cannot appreciate a rose which is not full, but what would our gardens be without the numerous modern "decorative" hybrid teas which flower almost without cessation from June till Autumn, producing a profusion of bloom quite unknown to nineteenth-century gardeners?

It would be interesting to hear what that great rosarian, the late Dean Hole, would say were he to pay a visit to one of our present-day National Rose Shows. But perhaps he is now gardening with roses beyond our ken in form and color and in fragrance. Ah! there's the sting, for too many of our new roses lack perfume, and in fancy one imagines the Dean sorrowful as he goes round the Show. But our rose raisers are keenly aware of the deficiency, and at no distant date there is little doubt that the ranks of sweet roses will be considerably strengthened. The sense of smell, nevertheless, appears to have been dealt out in somewhat unequal proportions, and the writer is afraid that raisers of new roses at times find in their own bantlings a fragrance, the detection of which is denied to ordinary mortals. In any case, it is difficult to obtain information of a fully satisfactory character as to scented varieties; even the list of fragrant roses given in the National Rose Society's handbook does not to the present writer appear to be infallible, and, as a guide to himself, and as a possible help to others, notes have been taken in successive recent Summers respecting the fragrance of some seven hundred varieties of hybrid roses.

Amongst the sweetest twenty-four hybrid roses should be placed Mrs. Bryce Allen, Hugh Dickson, General MacArthur, George Dickson, Crimson Emblem, Edgar M. Burnett, Hadley (one of the best of dark roses), H. E. Richardson, Madame Abel Chatenay, Madame Maurice de Luze, Mary Countess of Ilchester, Mrs. A. E. Coxhead, Lady Greenall, W. E. Lippiatt, Mrs. Maud Dawson, Zephyrine Drouhin, Duchess of Wellington, Ulrich Brunner, Mrs. Richard Draper, Commandant L. Barte, Alfred Colomb, Mrs. J. Laing, Beauty of Waltham, and the old favorite La France. Of these, Duchess of Wellington possesses so strong and sweet a tea fragrance as to resemble closely the scent of freesias; flowers of Lady Greenall will scent an entire room with delightful perfume, as also will Madame Abel Chatenay.* In degree of sweetness the above set of roses is closely followed in fragrance by Admiral Ward, Chas. J. Graham, Captain F. Bald, Chateau de Clos Vougeot, Cheerful, Colleen, Duchess of Westminster, Edward Mawley, Florence W. Veitch (one of our grandest crimson roses, whether as a climber or large bush), Gustav Grunerwald, Gruss an Teplitz, Hoosier Beauty, Jonkeer J. L. Mock, Laurent Carle, Lieut. Chauré, Madame Meha, Sabatier, Molly Blyth (a fine, large new pink rose), Mrs. Forde, Mrs. Geo. Norwood, Ophelia (soon to be in every garden), Walter C. Clark; and, of course, quite an extensive list could be named of roses which possess tea perfume in varying degree.

It will be observed that most of our sweetest hybrid roses are of red or pink shades. Probably the sweetest white rose is the rugosa Blanc Double de Coubert, which reminds one that the large pink flowers of the hybrid rugosa Conrad F. Meyer are also so very sweet. *Irish Gardener*.

*The roses of the late Dean Hole and Mr. J. Laing would be classed as "fragrant" in the handbook.

AUTUMN CARE OF FRUIT TREES

I AM now firmly convinced of the value of Winter spraying as a preventative of fungous diseases. Last year there was little disease of any kind, and one could not quite make out the results of spraying. This year, however, scab and brown rot are prevalent, and spraying has a chance to show its value. The contrast between the sprayed and the unsprayed trees is so striking that I no longer feel inclined to doubt the benefit of spraying. Apples and Plums are in two orchards that were sprayed last Winter, and the foliage is much stronger and healthier. These are the trees of Worcester

Pearmain in four orchards. In one that was Winter-sprayed the crop is a picture, the fruit being well developed and practically free from scab. In the other orchards fruits of this variety are badly scabbed, and there is a large proportion of small fruit, in spite of Summer spraying with lime-sulphur. In Plums there is much less brown rot in the orchard that was winter-sprayed. This has given me such a lesson that I shall go in strongly for spraying next Winter, and shall rely on this entirely as a preventative of fungous diseases, concentrating on insect pests in the Summer. It would, of course, be foolish to deny that the normal summer spraying against fungous diseases does good; but it is often disappointing, and I doubt if it is worth while when winter spraying is so successful. The wash used during the past two winters was a combination of copper sulphate and caustic soda, but lime-sulphur will be substituted in the coming Winter. Caustic soda should not be used repeatedly, as it has a hardening effect on the bark. Moreover, it is so unpleasant for the men who have to apply it that a change will be welcome. Caustic soda was used only because the trees were rather heavily coated with moss, due to neglect of Winter spraying during the war. Lime-sulphur is an excellent cleanser if the trees are not too mossy.

Fruit-growing becomes more and more scientific. Hitherto the manuring of orchards has been done on more or less haphazard lines. Most growers restrict their manuring to Winter dressings, either at regular intervals or when the trees seem to need help. There is always an extra amount of manuring done after a heavy crop because it is recognized that the trees have undergone a strain and want feeding if they are to continue cropping. Those who have given the matter much thought, however, must have realized that manuring in the Winter is too late to help the yield of the following year, since the fruit buds are formed during the year previous to that in which they open. Moreover, they burst in Spring before the roots have started into action and become capable of utilizing the manure and feeding the tree. For the production of strong bloom and the setting of fruit the tree must, therefore, depend on assimilated plant food which it has been able to store during the previous season.

A special soluble organic manure is applied in early August. This time is chosen because the swelling and development of the crop are then nearing completion. The food material given will not, therefore, pass into the fruit. It will go instead into the leaves, where it will be fabricated; and, not being wanted for immediate needs, must be stored by the tree for the next year, both in its fruit-buds and its system generally. This August dressing is followed by Winter manuring with some lasting organic material, such as hoof or meat meal. This insures that the trees shall be able to support the blossoms by a vigorous growth, so that the fruit may be held and the work carried on. These two dressings are given annually, and it is considered important that there should be no break. As a result it is hoped that the distressing habit of alternate year bearing, common to many late varieties of Apples, has been overcome.

Although I have some trees in grass which have so far proved quite successful, I do not welcome the idea of extending the system, as it gives less scope for manuring and involves a lot of mowing. *The Gardeners' Chronicle* (British).

DEPARTMENT OF BOOK REVIEWS

AMERICAN ROSE SOCIETY

1922 *American Rose Annual* (American Rose Society). This book includes 192 pages of text plus 16 inserted sepia plates and two color plates, the frontispiece being a double-size plate of a rose not yet introduced. Inasmuch as the members of the society make the *American Rose Annual* by their contributions and experience, it closely reflects the growing rose spirit of America. In 1922, there are some outstanding features. Three articles on back yard rose gardens tell the story of success under unfavorable conditions. A symposium, participated in by all the important rose hybridizers of America, and by many amateurs, tries to answer the question "What New Roses Does America Need?" Responding to many requests, there is presented a most complete compendium of information concerning insects and diseases that bother roses, probably the best and most useful information of the sort ever provided in America. Reports of the society's Test Gardens, observations concerning roses abroad, an accurate list of all the new roses of all the world, an intelligent account of the new English roses by the secretary of the National Rose Society of England, and a thoughtful survey of the rose cut flower situation, carry on the breadth of the book. There are as well many interesting rose notes provided by members of the society and a dozen and more additional articles, all original and forceful. The life and work of America's greatest rosarian and plant hybridizer, Dr. Walter Van Fleet, are presented in a symposium of appreciation. (Continued on page 128)

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NEW MEMBERS

The following new members have recently been added to the membership of the association: H. D. Prosser, Islip, L. I.; A. Bulpitt, Port Washington, L. I.; Alexander D. Elder, Oyster Bay, L. I.; William Thomas, Great Neck, L. I.; Steve Dobrowsky, Locust Valley, L. I.

N. A. G. BOSTON BRANCH

A meeting of this recently organized branch was held at Horticulture Hall, Boston, on the afternoon of the second day of the Spring Flower Show of the Massachusetts Horticultural Society. About fifty members were present when the chairman, Robert Cameron, called the meeting to order. W. N. Craig was appointed

secretary. Members were present from New Bedford, Haverhill, Manchester, Willesley, Framingham, Natick, Newton, and other points; also from Newport, R. I. The coming Boston convention was discussed, and unless some important events necessitate a change, September 12, 13, 14, 15 will be the dates; the first two for business, the last two for sight-seeing. A set of by-laws for the use of local branches was submitted and discussed to be taken up further at the next meeting, and amendments to the by-laws relative to the reserve fund of the society and other matters pertaining to the finances of the society, as well as the Service Bureau and its value to members, and the proposed course for professional gardeners at the Massachusetts Agricultural College, Amherst, Mass. The meeting lasted over two hours and was interesting throughout. The next meeting will be held about the last of April, while several members of the association will attend and speak before the North Shore Horticultural Society, Manchester, Mass., and endeavor to secure new members there, and perhaps institute a branch of the N. A. G.

W. N. CRAIG, Secy. pro tem.

NATIONAL ASSOCIATION OF GARDENERS' BOOTH AT THE FLOWER SHOW

The booth at the International Flower Show this year again demonstrated the fact that it is a worth while source of bringing publicity to the association. Estate owners from all parts of the country called for information regarding problems arising on their places, and to discuss the possibility of engaging efficient men. A number of people called at the booth to inquire just what the association was, as they had vague and often incorrect ideas as to its aims and purposes. Satisfactory explanations were given to them by those in charge. Attractive pamphlets, setting forth the aims of the association were distributed in large quantities from the booth. These pamphlets can be had from the office of the association if any member desires to obtain some for distribution among his gardening friends in an endeavor to interest them to become members.

SIGN BOARDS

From one of the association's members located in St. Louis, the following interesting news items regarding the abolishment of sign boards along the Missouri highways, has been forwarded: "The State Highway Commission today adopted a resolution to enforce a provision of the new highway law, under which advertising matter cannot be posted along the state highways. All the numerous highway associations, automobile clubs and old trail associations, for the time being and until otherwise ordered by the commission, are authorized to remove all advertising matter on the right-of-way of the state highways and to substitute fingerboards showing the direction and distances to various cities. Later the commission will make some designations relative to imparting information to travelers on the highways regarding distances to cities, direction, etc., of a more permanent nature than it is anticipated the various associations will make. The prime object at this time is to get rid of the advertising matter now so generously displayed on trees, fence posts and billboards along the highways."

The attention of the Secretary's office was also called to a story which appeared in one of the New England newspapers, which tells of the stand taken by the Cape Cod Chamber of Commerce to rid the Cape of unsightly billboards and advertising signs which disfigure the highways. "The first step in this campaign was the preparation of a petition addressed to certain conspicuous advertisers and advertising companies using these billboards. This petition, which was very largely signed through the Cape, was based on a plea to protect the picturesque landscape of the Cape."

OPENINGS FOR APPRENTICES

In answer to the appeal made by the Secretary's office for opportunities for young men who are desirous of locating on private estates as apprentices, several superintendents and gardeners notified the Secretary that there were such opportunities on places of which they are in charge, and young men were sent out by the Secretary's office to fill these vacancies. The Secretary still knows of several desirable young men who would like to become apprentices on private estates, and if any member can provide for one or two young men, the Secretary will be glad to hear from him.

LOCAL SOCIETIES

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The monthly meeting of the above society was held in the American Legion Hall, Portchester, on Tuesday, March 14. Owing to the illness of the President the chair was taken by James Linane, the Vice-President. There was an unusual number of exhibits, and all were of good quality. 1st prize was won by Pres. J. Tough for 3 pots *Lilium formosum* for which a Cultural Certificate was also given; 2nd prize also received a Cultural Certificate, being a superb vase of carnation Laddie, shown by W. Smith; 3rd prize was also for carnation Laddie, and won by E. Beckett. Other exhibits included roses, mignonette, antirrhinums, violets and sweet peas. Five new members were elected and three applications were received.

The special committee appointed for the Flower Show to be held by this society and the local branches of the ladies' Garden Clubs of America, reported progress.

It was decided to hold the show in September and the proceeds to be divided between the Greenwich and Portchester Hospitals. Announcements will be made later from time to time as reports are received from the committee.

HARRY JONES, Cor. Secy.

THE CLEVELAND HORT. SOCIETY

The regular monthly meeting of this society was held on March 9, with Mr. Brydon in the chair. It was decided to hold a small exhibit among members the evening of March 30, with an entertainment combined. Ralph Huntington of Painesville, Ohio, was the speaker of the evening and conducted a questionnaire on gladioli, perennials, and annuals. Mr. Huntington was well able to answer all questions put to him. The members gained a good deal of knowledge as to new and rare varieties; also what was most suitable to grow in this section. A rising vote of thanks was given Mr. Huntington in which all the members present joined. R. P. Brydon exhibited a plant of Begonia Lorraine which was awarded a certificate of merit. Mr. Brydon explained how the plant had been in bloom at Christmas and had been exhibited then at the Florists' Club. He then pinched it back; grew it on; with the result that it was more floriferous than at its first blooming.

W. J. BRUCE, Secy.

THE AMERICAN IRIS SOCIETY

A meeting of the New York Exhibition Committee was held on March 15. Arrangements were made to hold the New York Iris Show in the Museum Building, New York Botanical Gardens, New York, on Saturday and Sunday, June 3 and 4, from 9 a. m. to 5 p. m.

The program for the Annual Meeting of the Society is as follows: Morning, June 3—Inspect Iris Show; 12:30 p. m. Luncheon at Mansion House. Afternoon, June 3—2 p. m. Annual Meeting, Reports of Officers and Committees, Election of Officers, Discussion; 3-7 p. m. Official Inspection of Iris Test Gardens.

The schedule for the Show is now being prepared and can be secured after April 15 from R. S. Sturtevant, Wellesley Farm, Mass., or Mrs. G. V. Nash, New York Botanical Gardens, Bronx Park, New York.

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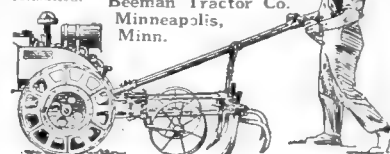
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For the Committee,
R. S. STURTEVANT, Secy.

ST. LOUIS ASSOCIATION OF GARDENERS

The Association met at the Forest Park Greenhouses on the evening of March the first. After the usual business session the evening was given over to an illustrated lecture on "The Building of Rock Gardens," delivered by Mr. D. Miller of the Missouri Botanical Garden. Mr. Miller related his experiences with rock gardens in England and the Eastern United States, and called attention to various methods of construction. These gardens were planted with various alpine plants, which of course will not stand the climatic conditions of the mid-western United States, and this fact led to a very interesting discussion about the plants suitable for planting in rock gardens in this section. It was finally concluded that a study of the native material of this or any other section of the country would yield sufficient subjects for the making of attractive rock gardens even in sections where alpine plants will not succeed. President Pring led the discussion and the writer as well as others took an active part. After the meeting the members were conducted to the show house of the Park by Messrs. Merriz and Strick, to view a beautiful arrangement of *Cinerarias*.

L. P. JENSEN, Cor. Secy

A black and white photograph of a large, multi-story building with a prominent central tower, surrounded by trees and a lawn. The building has several windows and a central entrance. The photograph is mounted on a page with a decorative border.

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“Do it right, or not at all”

The following letter was written by “Father John” Davey to the men in the Davey organization. It is reproduced here to give you an idea of the spirit behind these master Tree Surgeons

DEAR “BOYS”: “DO IT RIGHT, OR NOT AT ALL.” It was my father’s and has been my slogan for seventy-two years. Here is its history, as I know it: I was nearly four years old. My father was planting potatoes, in front of our neat little cottage, on a fine May evening.

I asked him if I could plant some. He opened up a trench at the end nearest the house. Then took a potato and said: “If I let you plant it will you do it RIGHT?” “I will do what you tell me.” Then, looking at me tenderly, he said, with a firm voice: “YOU MUST DO IT RIGHT, or NOT AT ALL.” He then went into the house and brought out a big iron spoon, and remarked: “Here is your shovel; keep it clean.” He then cut the potato in two, and made a mark for each piece, telling me I must put the *cut side* down, and went on to his work. I carefully laid the two halves in place, then took my *shovel* and looked at (what appeared to me) a *big ditch* that I had to fill.

Well, by sundown I had this huge hole filled, and father showed me where I could improve on the level, or grade. After saying my little prayers I retired, but father’s voice was heard: “Do it RIGHT, or not at all.” In the morning I awoke, and still that voice was ringing, “Do it RIGHT, or not at all.”

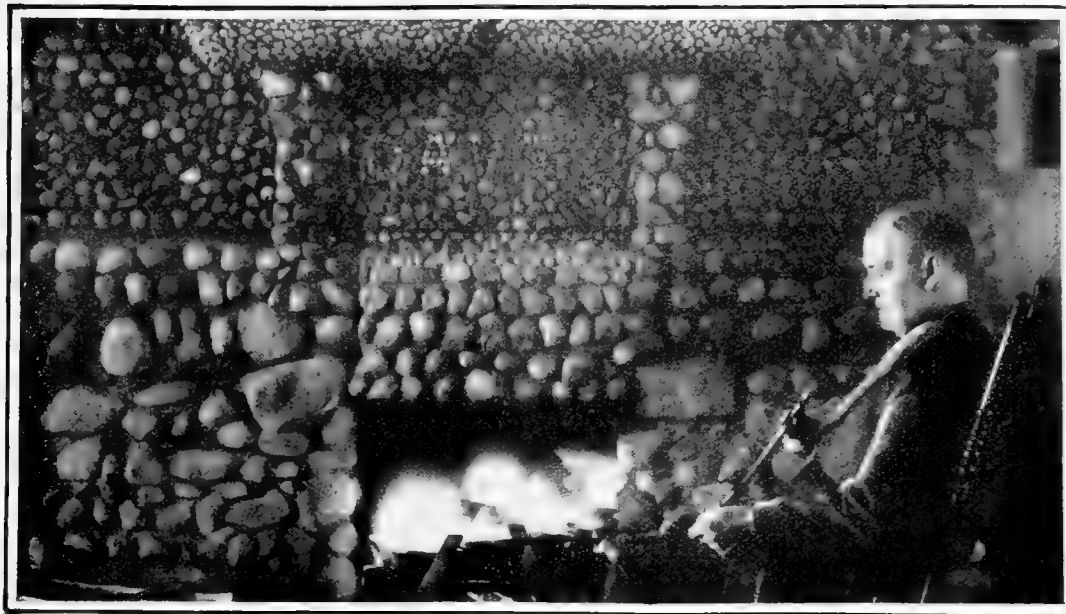
Then came those long days of waiting. “Will they NEVER come up?” A heavy rain packed the ground. Then I was presented with a new garden implement, a steel table fork; but it must be kept clean. With it I must keep the soil stirred. Finally a gentle rain came and, next morning, the ground was cracking and mother told me, “two little *baby plants* will be born.” And the next day; what a miracle! It was not *two plants*, but two groups of *triplets*, six new-born plants! Then came the instructions, “*never* let the ground *pack*, keep it loose, and give the plants water—in hot weather.” I was shown how to push the fork into the soil and keep the ground loose, and, in hot weather, I would hear mother calling: “Johnnie, your plants are thirsty; come and give them a drink.” Then she would give me a little pail with water, and a little tin cup, and oh! how my plants would *drink*! And they *grew* and went away ahead of any of dad’s; and when the crop was dug, he had nothing that could compare with mine! I did it RIGHT!

Dear “Boys:” Here is something you never had known, namely: THE SEED of The Davey Institute of Tree Surgery was sown 72 years ago, in front of the little cottage where I was born. That seed was: “Do it *right*, or not at all.” That kindly but manly voice went with me through boyhood’s days, and particularly through young manhood. As a result, I have never known what it was to be OUT OF WORK, but have frequently been in dire need of procuring others to help me execute what has

JOHN DAVEY



Father of Tree Surgery



John Davey, founder of the Davey Tree Expert Company, as he is today at nearly 77 years of age, at home before the fireplace he built with his own hands

been forced upon me. Notably was this true, 21 years ago, when I published the first issue of "The Tree Doctor." It bewildered my brain to find ways to procure efficient help to do the work I was called on to perform on "Sick Trees." Hundreds of young men wanted a "Job," but not one in ten knew HOW TO WORK; and worse yet they showed no inclination to LEARN.

Finally, after my son left college, and joined me, we decided to organize and form a training school; and we have been able to pick out the one-in-ten, or whatever proportion it has been, and under the management of this same son and his associates, to build up the wonderful organization to which you belong, and in which you, apparently, feel an honest pride, because you seem to have imbibed the spirit, "Do it RIGHT, or not at all."

I may here say that, in practicing this slogan from childhood, it has become an almost unconscious habit with me, in any and everything, to first learn the DO IT RIGHT, then add the speed. There are but few things more nauseating and disgusting than to see a young man shiftless and careless in his work. Personally, I would be unwilling to tolerate ANY one of such a character within our Organization. Such an one is a disgrace to himself and a positive damage to any concern that might keep him. But it gives me special pleasure to know that within our ranks there are very few, if any, of the class whose motto is, "GOOD ENOUGH!"

Your "Father John."

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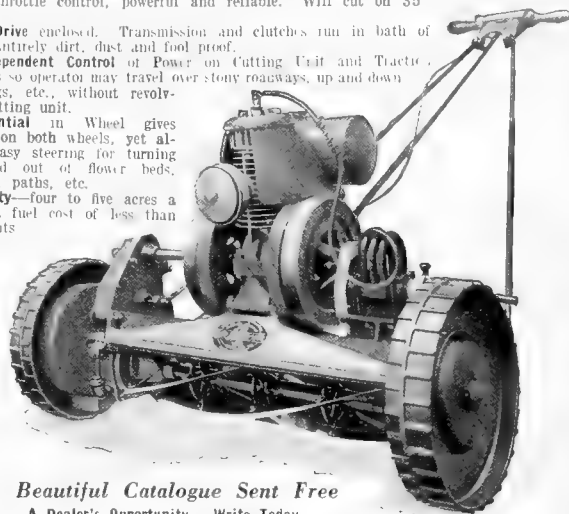
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

MAY, 1922

No. 5

Things and Thoughts of the Garden

MONTAGUE FREE

AT last a little controversy has been started because of opinions expressed on this page.

The following note has been received from Mr. Edwin Beckett of Aldenham House Gardens:

"I had pleasure in reading your notes in, I believe, the GARDENERS' MAGAZINE, regarding Aldenham. May I say, whilst writing, that you could have used the phrase as to our Trees and Shrubs numbering anything between 'Seven and ten thousand species and varieties' without fear of contradiction, for the statement made to you was quite accurate, especially as you will no doubt recall that your guide explained that such figure included plants of recent introduction that were still under collectors' numbers, and which for the time being were rightly classed as at any rate distinct varieties until determined by the leading botanists. Comparison of this figure with the Kew Hand List was rather out of the question, inasmuch as such work was last published in 1902, when their varieties were then numbered as about 4,500. That was nearly twenty years ago, since when wondrous strides in the direction of new introductions, and newly raised hybrids, have been made, and I think you will now agree that our figure is quite a probable one.

"Perhaps you will be able to call attention to these facts in the journal in question, as they certainly deserve this."

In the first place the statement made by our guide and quoted in the article referred to, was, if our memory is correct, that "the number of species and varieties was around ten thousand." This we understood to mean a few more, or a few less, than ten thousand—not possibly three thousand less.

We do not doubt for a moment that there are trees and shrubs at Aldenham under ten thousand or even more different names and numbers, but we are still doubtful whether these names and numbers represent well marked species and varieties, according to our conception of what constitutes a distinct species or variety. Some taxonomists, as is well known, are inclined to split up genera into innumerable species and varieties which many botanists and horticulturists would not recognize as such.

In connection with Mr. Beckett's contention that "Comparison of this figure with the Kew Hand List was rather out of the question * * *," we point out that our statement was: "In the 'Kew Hand List of Trees and Shrubs' published in 1902, the number of species of trees and shrubs cultivated there is given as three thousand." The number of varieties was not mentioned as at the time that information was not available. The fact that the Kew

Hand List was published twenty years ago and that a large number of new trees and shrubs were introduced during the last twenty years was recognized in the following sentence which Mr. Beckett perhaps overlooked—"It is scarcely possible, even allowing for the numerous new species of trees and shrubs introduced by Wilson and others during the past two decades, that the number of woody plants capable of cultivation outdoors in England has been increased to the extent of six or seven thousand."

We assume that Mr. Beckett means that the number of species and varieties cultivated at Kew numbered 4,500 in 1902, and not 4,500 varieties plus 3,000 species, in which case the above sentence should be amended to read: It is doubtful if the number of woody plants capable of cultivation outdoors in England has been increased in twenty years by about five thousand species and varieties.

Mr. Beckett is a great authority on trees and shrubs, the collection at Aldenham affords splendid facilities to enable him to form an opinion on this question and so it is quite possible that he is correct, but, personally we are not yet quite convinced.

* * *

Some time ago, on this page, attention was directed to some unusual common names for plants, and "Welcome-home-husband-be-you-ever-so-drunk" was cited as being the acme of unusualness. At that time the scientific name of the plant was unknown and the wish was expressed that someone might be able to enlighten the writer. Our trip to England indirectly led to the discovery of the correct name of this mysterious plant. On our return we found a book by W. H. Hudson, "A Shepherd's Life," which is concerned largely with the natural history of Salisbury Plain and the Wiltshire downs. It was, of course, read with intensified interest because of our visit to the region with which it deals. Great was our astonishment and delight on coming across a paragraph in which reference is made to the name, slightly different it is true, that had excited considerable speculation concerning the plant to which it could rightly be applied. The sentence in which it occurs may well be quoted. Hudson is referring to the roofs of the cottages on Salisbury Plain: "They are grown over with yellow stonecrop, that bright, cheerful flower that smiles down at you from the lowly roof above the door, with such an inviting expression, so delighted to see you no matter how poor and worthless a person you may be or what mischief you may have been at, that you begin to un-

derstand the significance of a strange vernacular name of this plant—"Welcome-home-husband-though-never-so-drunk."

Presumably the yellow stonecrop is none other than our old friend *Sedum acre*. It was mentioned in a preceding article that this queer name was used in some districts in Maine (we think it was in Maine), and here we have it cropping up again in Wiltshire. Its use is probably strictly local, for although we have spoken to many regarding it no one had ever heard it before. It raises interesting speculations as to whether some inhabitants of Wiltshire County in times past emigrated to America and carried this vernacular name with them.

While on the subject of common plant names, it may be remembered that *Polygonum orientale* is sometimes called "kiss-me-over-the-garden-gate." Hudson in this book refers to "kiss-me-down-at-the-garden-gate," sometimes called pansy"! Another folk name that he uses is "Old Women's Nightcap" which so far we have been unable to identify with any plant.

* * *

It should be most gratifying to the gardener and to plant lovers in general to notice that, according to the daily press, the use of living plants in the decorations of the recently refitted "Mauretania" was considered a cheerful "innovation" by her passengers. The report states that "Her permanent floral equipment includes 82 palms, 30 bay trees, 100 ferns, and 500 potted plants, blooming in a great variety of color." It is doubtful if this can be regarded as an innovation, however, for we seem to remember reading some time ago that the ships in the England-Brazil service were supplied with greenhouses so that fresh flowers might be had on the dining saloon tables every day. One can imagine the amazement of the old-time seafarer if he could come to life and see how the products of the garden are kept in a state of health upon the billowy ocean.

The report concerning the "Mauretania" unfortunately omits to give information on a point likely to be of great interest to gardeners, namely: it says nothing whatever about the methods by which the plants are cared for, whether a gardener or gardeners are carried, whether the plants have to be renewed every trip, or if they maintain themselves in good health indefinitely on the ocean.

On our recent trip to England on board the "Orbita," we were struck by the healthy appearance of the plants used on the dining saloon tables and in the various entrance halls. Much to our amazement, inquiry of the chief steward elicited the fact that these plants had not been renewed but had been placed in the ship at the commencement of trans-Atlantic service about three months before. He stated that one of the stewards was entrusted with their care, and they certainly reflected great credit on him. Most of these plants were of foliage type, such as palms, Crotons, and ferns. There were some plants of Dusty Miller (*Centaurea candidissima*), growing on the center tables in the saloon well away from the port holes, that were weird and ghost-like, but not unattractive in their etiolated condition due to lack of light.

The use of living plants in the decoration of ocean liners may open up possibilities for the gardener of a roving disposition who might gain much pleasure in tending sea-going vegetation and from the opportunity to entitle himself Head Gardener of the "Mauretania," "Homeric" or "Olympic," as the case might be.

* * *

Probably nothing in the garden at this season of the year (late April) evokes greater admiration than the various spring bulbs when they are naturalized in grass. This is a style of gardening that can be carried out to

greater advantage on private estates than in gardens to which the general public have access, as in a private garden there is less danger of vandalism and theft. Of course, flowering material in private gardens is not always immune. We remember that at Warley Place Gardens where *Narcissi* and other bulbs are naturalized in the grass in enormous numbers, that elaborate precautions were taken during their blooming season to prevent them being stolen. The flowers were visible from a public road, and as this garden is located only 18 miles from London, it would be quite easy for persons from the wicked metropolis to come out in autos, load up with flowers, and dispose of them in Covent Garden market. The flowers were therefore hedged about by wires, which, on being touched, would cause a gun to be fired, notifying the watchman of an intruder.

In public gardens in this country, especially those near the large cities, it is difficult to have anything in the way of a natural plantation of such bulbs as *Narcissus* and Tulip, because many of the visitors jump to the conclusion that they are "wild flowers" and consider it their privilege to pluck them at their own sweet will. Apropos of this subject, it is interesting to recall what a former Director of the Royal Gardens, Kew—Sir William Thiselton-Dyer—said concerning conditions there. In his preface to W. J. Bean's book, "The Royal Botanic Gardens, Kew," he has words to the effect that the avoidable damage at Kew, even on a holiday when it is thronged with people, could be covered by the expenditure of a few pence. He explains this by saying that Kew possesses the "grand manner," which can be inherited but not acquired, and implies that visitors have almost a feeling of awe when traversing its precincts which puts them on their best behavior. This may be so, but many would attribute the freedom from damage to the excellent supervision exercised by the thirty or more constables. Possibly when our public gardens here become mellowed with time and hoary with age, the general public will have a greater feeling of respect for the beauties in them and not feel that their happiness is incomplete unless they wantonly destroy or steal. In the meantime, educational methods and adequate policing must be our chief reliance.

MY GARDEN WITH WALLS

My heart a garden is, a garden walled,
And in the wide, white space near the gates,
Grow tall and showy flowers, sunloving flowers,
Where they are seen of every passer-by,
Who, straightway faring on, doth bear the tale
How bright my garden is, and filled with sun.

But there are shaded walks far from the gates,
So far the passer-by can never see
Where violets grow for thoughts of those afar,
And rue for memories of vanished days;
And sweet forget-me-nots to bid me think
With tenderness—lest I grow either cold
And hard as women grow who never weep.

And when sometimes I fear that love is dead
And sorrow rules as king the world's white ways,
I go with friends I love among those beds
Where friend and flower do speak alike to me,
Sometimes with silences, sometimes with words.

Is then I thank my God for those high walls,
That shut the friends within, the world without,
That passers-by may only see the sun,
That friends I love may share the quiet shade.

The Nature Garden Weekly.

Hardy Perennials for the Garden

JOHN JOHNSON

NO class of plants are in greater public favor or in greater demand than the hardy perennials. For this reason it might be justifiably claimed for them that few other plants equal their importance in the gar-

of so-called "Newer Perennials" comprising names so familiar as to serve only as a most vivid reminder of one's boyhood days. Were this the subject of our text it might be discussed at greater length, but to continue would defeat our aim.

The mixed border always has been and will probably continue to be the most favored resort for the disposition of hardy perennials, but an entire garden area embracing native landscapes devoted exclusively to their culture is something which has yet to be fully appreciated here in America. Despite the popularity of the herbaceous border there can be no question as to the advantages which a perennial garden offers in the way of mass plantings. The gorgeous effect of bold masses is, after all, the pertinent method of growing perennials. Certain kinds planted as single specimens are insignificant, but the same when grouped are very beautiful. Of course what appeals to one might not always so favorably impress another, and the method of planting is therefore largely a matter of individual taste. To make the best of the material at hand is the real question, and it is safe to assume that the arrangement of a perennial planting reflects the personality of the owner in the same



A view of the perennial garden on the estate of Mrs. J. A. Spoor, Pittsfield, Mass. The border plantings comprise irises and peonies for early summer bloom, followed by delphiniums, phloxes, veronicas, physostegia, etc., and rambler roses trained on chains in the background.

dening world of today. The ease with which most of them are grown, disparity in height, habit of growth, color and the varied conditions under which they thrive, commend them to all garden lovers, particularly beginners who would grow flowers at a minimum outlay of time and money. On account of the steady and ever increasing demand for hardy perennials it is not surprising that vast improvements have been wrought among certain kinds during recent years.

The once despised Michaelmas Daisy has undergone such transformation at the hands of the hybridizer that it is now classed among the most desirable of perennial plants. Delphiniums too, always stately, have been wonderfully improved by careful hybridization and selection. *Astilbe* and *Aquilegia* are plants whose beauty have been greatly enhanced with the course of time. Be this as it may, it is nevertheless amusing, and to some extent provoking, to the garden enthusiast who has been closely associated with gardens and gardening all his life, and who, perchance, might have striven to keep in touch with much really new, to see listed in our catalogues under the title "Novelties" so many plants that were favorites a quarter of a century ago. This is regrettable in so far as it may sometimes prove misleading. Only the other day there came to my notice an abridged list

measure as does the interior decoration of the home. There are those who seem to abhor repetition of the



Another view of the perennial garden which is on a steep hill overlooking Lake Onoto. The main pathway passing through the arbors, illustrated, leads to the boathouse by the lake.

same plant or group along a border, while others would deem such repetition necessary to maintain proper balance. When a border is straight and narrow, I believe the best effect may be had by using a few plants or groups of the same type and color at given intervals. In a border of irregular outline, or one of good width, repetition is less needful. Perennial plants are so numerous and choice that there is little excuse for stereotyped methods of planting. Nothing is more disappointing than to enter a garden in which one border typifies the rest. This condition every gardener should try to avoid if he would have his garden give real pleasure. Again, so many people having a fondness for a certain plant will put it here, there and everywhere, and thus mar the interest of a garden. Of course, no matter what pains is taken in planting it will probably take years of study and observation to get just the desired effect, and this is one of the real pleasures of growing perennial plants—striving to get better results each year.

Delphiniums rank among the best hardy border plants. There are several special of the perennial delphiniums, ranging in height from 1½ feet to 8 feet. Their habit of growth is striking and the stiff spikes of bloom are in most intense shades of blue, as well as in mauve, purple, sulphur, white and scarlet. Among the dwarfed kinds are *D. chinense*, 2 feet, blue and white varieties; *D. cardinale*, 3 feet, scarlet flowers in August. A handsome plant but not a long liver, *D. nudicaule*, 1½ feet, orange scarlet, and flowers in July. The noble hybrid forms, however, are of surpassing beauty when well grown. They require a deep rich soil, free from fresh manure which has a tendency to breed disease, but the ground should be abundantly rich nevertheless. Good varieties are: Amos Perry, Hugo Portman, King of Delphiniums, Queen Wilhelmina, Lize and Rev. E. Lasceles. No plant has been so greatly improved of late years as the delphinium. New varieties come to light annually and it is both easy and interesting for the amateur to raise seedlings each year and retain varieties of merit. Delphiniums should be cut down immediately after flowering to insure succession of bloom. Established plants give two crops of bloom, while one year old plants flower more or less the whole season.

The peony ranks high in popular favor. There are two distinct types of peony, one of a shrubby nature, *P. Moutan*, called the tree peony, and the other a strictly herbaceous plant. Both are extremely hardy, showy, and easily grown. A deep rich soil suits them and they should be well supplied with moisture at all times, especially during the period of flowering. Peonies are somewhat accommodating, as they will endure full sunlight or a partially shaded position. They, however, resent to some extent disturbance at the root, and for this reason established plants should not be lifted more often than is absolutely necessary. When transplanting must be done it is just as well to remove the old soil from the tubers and give the plant a fresh start in rich soil. Varieties are very numerous and range in color from white to deepest crimson. There is also great diversity in form and size of the blooms and the aspirant who is looking for the best would be well advised to visit the establishment of a specialist and make a selection while the plants are in bloom. After flowering the foliage always looks well and for this reason peonies are given wider usage than any other hardy perennial.

Astilbe, erroneously called *spirea*, has always been held in high esteem. For the margin of streams or ponds it is a most desirable plant. It is also a splendid border plant and may be used for forcing in pots for which purpose nearly all varieties are very suitable. No matter where grown, astilbes should never want for water at

the root during active growth. As garden plants, the value of astilbes has been greatly enhanced by the introduction of many beautiful hybrids. They grow from 3 feet to 6 feet in height according to the variety and flower during July and August. The *Arcendsii* hybrids are among the most striking: *A. Ceres*, rosy lilac in color, about 4 feet in height; *A. gloria*, similar in color but finer than the foregoing; *A. Juno*, rosy violet and a very handsome plant; Pink Pearl, dense panicles of a delicate pink shade; *A. Venus*, deep rose, tall and branching spikes; *A. Davidii*, also tall and a striking plant with good foliage, and flowers reddish-purple, not an old plant but already the foundation stock of many of the very best hybrids; *A. Moecheimi*, similar in habit to the last named, but the flowers creamy white in color. Peach Blossom and Queen Alexandra are pink varieties somewhat dwarfed in habit and flower earlier than the above mentioned.

The perennial aster is popularly known as Michaelmas Daisy or starwort. Here is a native plant which is gradually finding its way into American gardens and rightly so, because it possesses real merit as a garden plant. This aster has received greater attention at the hands of the English hybridizers than probably any other perennial plant. The different species and varieties vary in height from 2 feet to 8 feet, and can therefore be put to many and varied uses in the garden. The various shades of color in the starworts are too well known to quote, but it must be conceded that the newer hybrids have more intensified coloring and larger flowers than the species. Good varieties are King George V, Robinson V. C. Louvain, Serene, Edwin Beckett, Mons, Brightest and Best.

Heuchera (Alum Root) is a compact plant with pretty bluish-green foliage, fine for a position near the front of the border as it is practically evergreen. There are several varieties of *Heuchera sanguinea* which have coral red flowers. H. Nancy Perry has pink flowers, and is perhaps the finest form.

Aconitum is a very satisfactory plant for the border as it does well if planted in full sun and a little better perhaps in half shade. The color of the flowers is for the most part in shades of blue or violet, although there is a white variety and one, *A. Napellus* var. *bicolor*, with blue and white flowers. The different varieties bloom over an extended period, from July until late October. The best varieties are *A. autumnale*, *A. Fischeri*, *A. Wilsoni*, and several named sorts of *A. Napellus*. They vary in height from 3 feet to 8 feet.

Achillea is a perennial useful as a border plant as well as for cutting. It thrives in ordinary soil and either in sun or half shade, though it prefers the former. The outstanding varieties are *A. millefolium roseum*, and *A. Ptarmica* var. The Pearl. They are of rather rampant growth and increase rapidly by underground runners and require drastic treatment to keep them in bounds.

Anchusa is a useful plant on account of the unusual color of the flowers. *A. italica* var. Dropmore, a deep gentian blue, and the variety Opal has flowers of clear sky blue.

There are many artemisias in cultivation although the variety *A. lactiflora* is by far the most worth while. It grows 5 feet to 6 feet tall and has branching spikes of creamy white flowers the end of August to mid-October. It should be in every perennial border.

Boltonia is a tall growing plant resembling the Michaelmas Daisy. The varieties *B. asteroides*, white, and *B. latissquama*, pale lavender, are the best. Flowers in September and October, and is good for naturalizing or planting in the shrubbery.

Campanula is a bell-shaped flower and one of the

most useful border plants, varying in height from a few inches to 5 feet, and not particular as to soil or situation. *C. carpatica* grows about 1 foot in various shades of blue. There is also a white form, *C. glomerata dahurica*, rich purple, very effective in mass, spreads rapidly, grows 2 feet and flowers during June and July. *C. lactiflora*, pale mauve, large flower heads, is a fine border plant flowering from June to August; *C. lactifolia* has tall spikes of drooping bells, blue-mauve; *C. persicifolia* has large bells and pale blue flowers. There is a white form, also one with double flowers, which is the most desirable of all. Many of the dwarfed kinds, such as *C. pumila*, *C. rotundifolia* and *C. muralis* are suitable for rockery as well as for edging.

Caryopteris incana (*Mastacanthus*) is a sub-shrub, resembling spiræa, with lavender flowers and grows about 3 feet, and is a very desirable border plant. It may be used in front of shrubbery.

Centranthus (Valerian) is a perennial which thrives in poor soil and grows from 1½ to 2 feet, with dense heads of tiny flowers, red, pink and white. It succeeds best grown as a biennial or may be flowered from seed sown early in the year. It is quite distinct from *Valeriana officinalis*, which grows 5 feet and is a veritable weed unless kept in bounds.

Cimicifuga is a handsome plant with good foliage and graceful spikes of bloom, flowering late in the Summer and early Autumn. *C. cordifolia*, the earliest of the group to flower, tall erect spikes of bloom in August; *C. racemosa*, a good variety with drooping racemes; *C. simplex*, the last to flower and not quite so tall as the above. Of handsome foliage and gracefully pendulous flower spikes, *cimicifugas* should be in every garden.

Clematis generally known as a climber, has several herbaceous varieties growing from 2 feet to 4 feet. *C. recta* is the best known, flowers white on long stiff stems, a very showy plant with single flowers. There is a double form also. *C. Davidiana* is a useful sort having blue clusters and flowers at a time when blue flowers are somewhat scarce during August and September.

Eremurus has tall spikes of creamy white flowers. A group of *E. himalaicus* gives a stunning effect against a background of green. *E. robustus* has rosy pink flowers borne in immense spikes. *Eremurii* flower in May and June.

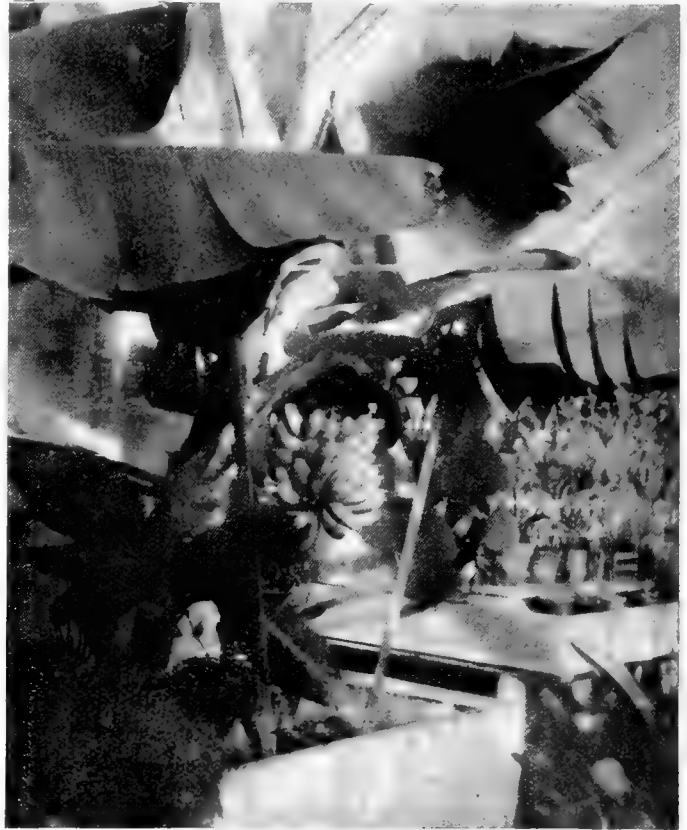
The iris comprises a very extensive genus of herbaceous plants, chiefly hardy and with very bright and showy flowers. The flowering season of different irises is varied but most of them bloom from May to July, when the numerous varieties of *germanica*, *aphylla*, *squalens*, *pumila* and *lævigata* or *Kämpferi* are in blossom. The genus is divided into two groups, the rhizomatous types, or irises proper, and the bulbous irises, Xiphions or English and Spanish irises, as they are variously termed. Like the peony both species and varieties are so numerous that a selection of the best would be impossible. The bearded or flag irises are very popular and include *permanica*, *amara*, *aphylla*, *neglecta*, *pallida*, *squalens*, *variegata* and *lævigata* groups. Most of the irises thrive best in a sunny position and are not particular as to soil, but the *lævigata* section is naturally moisture loving and makes desirable plants for the hardy flower garden and could be greatly extended.

Democracy can never be extended by force, as you would fling a net over a flock of birds; but give it a chance and it will grow, as a tree grows, by sending down its roots into the heart of humanity and lifting its tops toward the light and spreading its arms wider and wider until all the persecuted flocks of heaven find refuge beneath its protecting shade.—Henry Van Dyke.

A BANANA PLANT

John S. Doig

A BANANA plant is illustrated here in fruit; the bunch, as shown in the illustration, carries one hundred forty fruits ranging from six to eight inches long, and of good uniform thickness. The flavor of the fruits is all that can be desired, as they are allowed to ripen on the plant. The plants were placed in their final quarters in August, 1920, from ten-inch pots; in August, 1921, they showed the bunches; on December 20, 1921, I cut the first fruit. As soon as the fruit has been all cut off, the old plants will be discarded and young plants, which are coming along nicely in ten-inch pots, will take their place. The box in which the two plants are growing is about



A specimen banana plant.

four feet wide, two and a half feet deep, and ten feet long. The compost consists of good friable loam, cow manure, and bone meal. The temperature ranges from sixty-five to seventy-five degrees at night, and is of a moist nature. The glass is slightly shaded during the hot months, but after the fruits are fairly well developed, the shading is removed. These plants have been a source of great satisfaction and interest to the owner, and of much interest and wonderment to many visitors.

DEVOTED

American business men are devoting so much time to golf they may soon get to the stage suggested by the following Scottish story:

"It's ground weather for golf we're hae'ing th' noo," remarked Sandy to Jock. "I'll go ye a run on the links in th' mornin'."

"In th' mornin', ye say?" replied Jock.

"Aye in th' mornin'," replied Sandy.

"Ah, weel," said Jock, "I canna miss a game o' golf. I'll go ye." Then after a long pause he added: "But I had intended tae get married in th' mornin'."

Sweet-Scented Flowers

FLORUM AMATOR

WE are accustomed to speak of flowers as pretty, dainty, beautiful, handsome, and sweet-scented. While the application of the other adjectives is somewhat a matter of taste there are in fact comparatively few flowers to which the word sweet-scented can be fittingly applied.

SWEET-SCENTED ANNUALS

Of the fragrant annual flowers which we raise from Spring planted seeds, Sweet Peas are deliciously sweet-scented even beyond the degree which the simple word "sweet" conveys to us. Some varieties seem to give forth a healthier and more agreeable perfume than others. If we plant the varieties separately and label each, it is indeed interesting to compare the fragrance of the flowers when freshly picked, and to note which exhales the most agreeable and which the heaviest perfume, and again to make the same comparison after the flowers are several hours old. The Sweet Pea is one of the flowers in which unusual beauty of form and color and a delightful odor are combined.

Mignonette has a peculiar fragrance which is pleasing to many, but which has always seemed to us to be too highly praised. The old time variety, *odorata*, has a more pronounced and pleasanter fragrance than many of the modern larger flowered varieties, though some of them are quite sweet and their flowers much larger and prettier than those of *odorata*; in this class are such varieties as Machel and Goliath. We may note here that the Latin word, *odorata*, meaning sweet-scented, is used as the specific name of many kinds of flowers, for example the Sweet Pea is *Lathyrus odorata*; the Mignonette, *Ruscus odorata*; the Pond Lily, *Nympha odorata*. Were it not for its fragrance we are inclined to think that Mignonette would be a little noticed flower, but because of this quality it is an old favorite. Tennyson who in his poems mentions more flowers than any other English speaking poet, except Shakespeare, says in "The Miller's Daughter":

"For you remember I had set,
That morning, on the casement's edge
A long green box of mignonette,
And you were leaning from the ledge
And when I raised my eyes above
They met with two so full and bright,
Such eyes! I swear to you, my love,
That these have never lost their light."

Stocks are an annual easily raised from seeds. These produce long spikes of flowers, some double and rose-shaped, others single in several pleasing colors, and having a delightful clover-scented perfume. Stocks produce their best flowers in the cool Spring or Autumn days, not in Summer's scorching heat. There is, we think, no other flower which combines stateliness, beauty of color in the rose, pink and purple shades, and entrancing sweetness in a greater degree.

The Heliotrope, a flower whose well-known and exquisite perfume needs no defining, as the meaning of its name indicates, unlike stocks, loves the long, hot Summer days and luxuriates in the full light of the sun. This flower with its varying shades of purple is a favorite not only with mankind, but we have often noticed when walking in our flower garden, has for lovers the bees, butterflies and humming birds as well. Strictly classed as a Heliotrope is a tender perennial, but plants from seeds will bloom the first season.

The common or Wallflower, though not as pro-

nounced as that of Stocks, is unique and so pleasant that it has made that flower both an old-time and present-day favorite not only in England but also in the United States. Wallflowers resemble single-flowered Stocks in form but not in color, but like Stocks are at their best in Spring and Autumn. The botanical name of Wallflower is *Cheiranthus Cheiri*. Strictly speaking, Wallflowers are perennials but early Winter-sown seeds will give plants which will bloom the following Christmas under glass. The botanical name of Stocks is *Matthiola incana*, variety *annua*, but Stocks and Wallflowers are closely related.

In flower from mid-Spring till the snows of November whiten the ground, *Alyssum maritimum*, because of its delicate and delightful fragrance well deserves its common name, Sweet Alyssum. The white flowers of this *Alyssum* are indeed small but very abundant. For bordering flower beds, for window and porch boxes, and hanging baskets, Sweet Alyssum is excellent.

Sweet Sultans, *Centaurea imperialis*, have several qualities recommending them strongly to the favor of flower lovers besides their delightful fragrance. The exquisitely fringed flowers in lilac, pure white, rose-color, and purple are carried high above the foliage on long, stiff stems and if cut when partly open, will last longer than almost any other flower in water, not infrequently from eight to ten days. Sweet Sultans too, like Stocks and Wallflowers, give us their finest blooms in the cool days of Spring and Autumn, and we should sow the seeds either very early indoors to produce plants for setting out in the garden early for Spring flowering or sow in mid-Summer for plants for Autumn flowering or both.

No one of our annual flowers, perhaps, has been more improved in its range of colors than that old-fashioned flower, Sweet Scabious, *Scabiosa maxima plena*. One of its old-time common names was Mourning Bride given to it obviously for the reason that its flowers were then of one color mostly, and that color such an intense, deep crimson as to look almost black. The modern Sweet Scabious, however, is not confined in color to a nearly "melancholy black," but bears blooms of white, light-blue, cerise and golden-yellow. Sweet Scabious has a fragrance which is not only pleasing, but also "that is different" and like Sweet Sultan carries its flowers on long stems, which makes it valuable for cutting.

When a rather large bushy plant reaching a height of two or three feet can be used to advantage in our garden beds or borders, among those whose flowers have a pronounced but pleasing smell, *Nicotiana affinis* is a candidate for the position. *Nicotiana* is a profuse bloomer throughout Summer and Autumn. The species, *affinis*, bears white flowers, but the hybrids of *affinis* give us blooms in shades of purple, red, violet and pink as well as white. The common name of *Nicotiana* is "Flowering Tobacco."

Mimulus moschatus is the Musk Plant. *Mimulus* is really a half-hardy perennial rather than annual, but will bloom the first year from seeds sown early. This plant prefers a moist, shady situation, as can be clearly seen from where our native species, *Mimulus ringens*, is found growing. The musk-like scent of *Mimulus moschatus* lies in its foliage rather than in its small yellow flowers. This is an excellent plant for hanging baskets.

Marguerite Carnations, like the "Perpetual-flowering" Carnations so much grown under glass, have a remarkable range of beautiful shades of color and of variegations

and an exquisite fragrance. This type of garden Carnation has the merit of coming into bloom in about three months' time from seed sowing—that is, seeds sown in April or May will give flowers in July and August.

There is another type of garden Carnation known as Chabaud's Carnations, marvelous for size and colors and the sweet scent of their blooms. Seeds of this Carnation, however, must be sown indoors in February to produce plants which will bloom in our garden in Autumn, but they are worth waiting for, and when open their flowers rival the finest blooms of the Perpetual-flowering Carnations.

SWEET-SCENTED PERENNIALS

Some perennials are tender, others hardy. To the former class belongs *Aloysia citriodora*, whose flowers are indeed insignificant, but the lavish citrus-perfume of the foliage is very refreshing and gives to this plant its specific name, *citriodora*, meaning citrus-scented, and its common name Lemon Verbena. Sprays of Lemon Verbena even when the leaves are dry retain in a notable measure their agreeable perfume, especially when confined in chests of clothing. The dry foliage of this plant is used in potpourri. Lemon Verbenas can be raised from seeds planted indoors in Winter and, if planted out in the garden after Spring frosts are over, will make plants of considerable size the first season.

The double-flowered, hardy, Grass or Spice Pink, *Dianthus plumarius nanus flore pleno*, the highest and most pleasing evolution from the dear old-fashioned Clove Pink, has a marvelously pleasing clove-like perfume of which we never tire. The colors and markings of this *Dianthus* are as—*amara* the Romans used to say—pleasant to the eye, as the perfume is—*suavis*, the Romans said—agreeable to our nostrils.

There is another *Dianthus*, resembling to some extent, but yet quite different in its inflorescence from the Grass

Pink, but like it is an old-time favorite much improved by modern culture. This every flower garden should contain. This plant is the *Dianthus barbatus*, commonly called Sweet William, some William indeed was greatly honored when his name was given to this sweet-scented flower, whose blooms vary in color from white to deepest crimson, and revel in pretty combinations of colors. There are now, thanks to our floriculturists, annual as well as perennial or strictly speaking biennial, Sweet Williams.

There is an old-time sweet-scented perennial, little seen now in flower gardens, *Valeriana officinalis*, commonly called Valerian, and also Hardy Garden Heliotrope. The showy heads of rose-tinted white flowers of this plant appearing in mid-Summer have a pronounced and delicious heliotrope smell.

There are several sweet-scented perennials, bulbous or semi-bulbous mostly, which we will not describe in detail, namely, some of the hardy lilies, especially *Lilium candidum* (Annunciation Lily), *Hemerocallis flava* (Yellow Day Lily), *Convallaria majalis* (Lily of the Valley) and *Funkia cordata grandiflora* (Plantain Lily).

Suppose, if you please, that we had all of these sweet-scented annual and perennial plants growing in one garden, and they were all in leaf and in bloom on the same day, and pad and pencil in hand we should, as we tested the smell of each one with our olfactory nerve, try to describe it, do you think we would succeed?

Another question of interest to us and perhaps to others is this: Do we remember and can we recall a smell? For example, can we recall the smell of a Heliotrope flower, which we smelled a year ago just as we can recall the lineaments of the face of a friend we met last year? Apropos of this question, Owen Meredith says in "Aux Italiens":

"And I swear as I thought of her thus in that hour,
And how after all old things are the best,
That I smelled the smell of that Jasmine flower,
That she used to wear in her breast."

Flowers as Teachers

BERTHA BERBERT-HAMMOND

*Were I, O God, in churchless lands remaining
Far from all voice of teachers or divines,
My soul would find in flowers, Thy ordaining
Priests, sermons, shrines.—Horace Smith.*

IN an unmistakable manner do flowers, those silent but persuasive teachers, bring home to us in their own sweet, convincing ways, many lessons and truths. In most instances these lessons are so plainly indicated that there is not the slightest difficulty in observing and comprehending the truths to be learned. In the language of another:

*There are the little books of bloom
Whose pages printed in perfume
Hold lyrics in a language known.*

The shy violet, hiding from view, teaches sweetness and humility; the wild columbine, growing on a rocky ledge with barely enough earth for a foothold, shedding fragrance and beauty, speaks of courage. The dainty snowdrop and other harbingers of Spring breathe of resurrection, and evergreen leaves typify everlasting life.

Because, suggested by some prominent characteristic, certain plants have become associated in the minds of people in general with human virtues. The stately white lily is universally acknowledged to be a symbol of purity,

the orange blossom of chastity, the forget-me-not of love, the ivy of fidelity, the nettle of cruelty, the weeping willow of melancholy, and the trembling leaves of the aspen for lamentation.

There is an old legend to the effect that when God walked in the Garden of Eden, viewing the beauty He had created, all the flowers and trees, with the one exception of the Aspen, bowed in homage and love, and that now in penitence, wherever the Aspen tree is found, its leaves tremble and sigh all the time.

That in olden days meanings were attached to "green things growing" is evident from the custom of crowning heroes with wreaths of laurel (glory), patriots with oak-leaves and beauty with myrtle. The olive branch is an ancient emblem of peace and the passion flower for "faith." Innocence is expressed by the white daisy, the "day's eye," and pansy faces we know induce thoughts. As for the golden buttercups that so lavishly spangle our fields, they bring recollections of childish ways and

*We fancy a grassy meadow,
Where two little girls in blue
Are testing the rule and and saying,
"I like butter; do you?"*

(Continued on page 154)

Rhododendrons and Azaleas in the Garden

FRANK B. MEYER

OF rhododendrons there are more than two hundred species. Most of these have been found upon the Himalayas and the mountains of southwestern and western China, where have recently been discovered very many new species, some of superior loveliness. One or two species are native to northern China, two to central Japan, one to the Pacific states of North



Azalea lutea, Flame Azalea. (Courtesy of Harlan P. Kelsey)

America and five to the Atlantic, two to the mountains of central Europe and four to the Caucasus.

The ordinary reference to rhododendrons means some of the hybrids, the "handsomest of all broad-leaved flowering evergreens," so desirable because of their handsomeness, but in the eastern and northern parts of the United States generally not permanent or at least not satisfactory in their behavior. The explanation of this can be made most conveniently by quoting from Ernest H. Wilson's remarkable article that appeared in the *Garden Magazine* about five years ago. Centering largely around the Arnold Arboretum and written with New England conditions in view it contains mention of difficulties that can be discounted somewhat in a climate not so rigorous.

"The present day race of evergreen rhododendrons is essentially an English product and to better understand the subject let us briefly investigate its early history. No rhododendron is native of the British Isles and the first of the evergreen section to be introduced was *R. maximum*, indigenous to eastern North America, which flowered for the first time in London in 1756. A few years later (1763) *R. ponticum* was introduced and was followed in 1803 by *R. caucasicum*. The American *R. catawbiense* was introduced by John Fraser about 1809, and was common in gardens in 1838. Here are the beginnings of the rhododendron cult in England. Of these four species only two (*R. ponticum* and *R. catawbiense*) have played a major part.

"As a breeder *R. ponticum* has been the greatest asset and although its color is not good it

has proved extraordinarily adaptable in Great Britain and Ireland. This species grows wild in southern Spain and reappears in Asia Minor, in Syria and in the warmer parts of the Caucasus. These regions enjoy a much warmer climate than does New England and from our viewpoint it is a tender species and unsuitable as a breeder. Also, for the same reason, it ought not to be used as a stock for grafting; yet, unfortunately, it is the stock so employed. An appreciation of these facts explains in a large measure the doubtful hardiness and uncertainty of the present-day race of rhododendrons, since the blood of this tender species enters largely into the majority of the varieties.

"In the matter of hardiness the American *R. catawbiense* has been the greatest of all gifts in the realm of rhododendron and the hardiness of our present-day race depends almost solely upon the dominant influence of the blood of this species.

"*Rhododendron caucasicum* is a native of the higher Caucasus peaks and should be of much value to us since it is quite hardy in New England. Unfortunately it has been very little used by hybridists; but such offspring as *Boule de Neige*, *Coriaceum*, *Jacksonii* and *Mont Blanc* are very satisfactory plants in the Arnold Arboretum.

"Our native *R. maximum*, though the first species introduced to cultivation, has played a very unimportant part in the evolution of present-day rhododendrons. In a manner it has been disappointing; yet it is questionable if it has had a fair chance. To us its hardiness and late flowering are qualities of vast import."

Of the hybrids those that are most adaptable to the climate of Boston are: with red flowers, *Atrosanguineum* (very early), Charles Dickens, H. W. Sargent (late); with reddish flowers, *Caractacus*; with rose-colored flowers, *Roseum elegans*, Lady Armstrong; with pink flowers, Mrs. Charles Sargent, Henrietta Sargent; with dark purple flowers, *Everestianum*; with white or nearly white flowers, *Album elegans*, *Album grandiflorum*, *Catawbiense* (very early). But near Philadelphia at



Rhododendron catawbiense, Catawba Rhododendron.

(Courtesy of Harlan P. Kelsey)

Lindenhurst, the estate of Mr. John Wanamaker, whose capable superintendent, Mr. John H. Dodds, is authority for much that is contained in this article, the hardiest of all has been found to be one not in Mr. Wilson's list, namely Kettledrum. In addition to this one the book, *The Complete Garden*, names eleven others as hardy in northern Ohio.

Such then are the present limitations to increasing the variety of broad-leaved evergreen rhododendrons in our gardens.

Of evergreen rhododendrons with small or comparatively small leaves, to quote Mr. Wilson again, "only a limited number have proved to be hardy and amenable to cultivation in this country. Many of them may be rooted from cuttings; but it has been found difficult to hybridize them with members of other groups. As a garden plant for this country *R. carolinianum* is by far the best species of this group and is one of the very finest of all broad-leaved evergreens hardy in Massachusetts. *R. minus*, better known as *R. punctatum*, which grows in the same region but at a lower level, is an old denizen of gardens; it has smaller leaves and flowers and a more open habit than *R. carolinianum*."

In northern Georgia is a form of it (variety *harbisonii*) with larger leaves and flowers in larger clusters, which may be expected to make a handsome garden plant. According to a recent bulletin of the Arnold Arboretum it is not yet in cultivation.

"The two dwarf rhododendrons *R. ferrugineum* and *R. hirsutum*, natives of the mountains of central Europe," Mr. Wilson goes on to state, "are unsatisfactory in New England; but three hybrids between them and the *R. minus* are valuable garden plants in this climate. One of these hybrids, *R. myrtifolium*, is a very compact round-topped shrub, from two to four feet in height, and as much through, with neat foliage and small pretty pink flowers. Another, *R. arbutifolium*, is a shrub of open spreading habit and forms low wide masses. The chief value of the plant is in its ability to cover either sunny or shady banks and for this it is admirably adapted. The third hybrid is known in gardens as *R. wilsoni*. It also spreads over sunny and shady banks which it covers in June with beautiful lavender blooms. From the cold regions of Manchuria and Korea come *R. dahuricum* and *R. mucronulatum*, which have deciduous leaves. Other early-flowering rhododendrons are *R. præcox* and its variety Early Gem. Both are evergreen bushes, much branched in habit and have pale to deep pink flowers. In favorable seasons, when the flowers escape the late frosts, these plants are very beautiful in Spring; but unfortunately this rarely happens.

"Valuable for the rockery and partial to sunshine are *R. racemosum*, *R. flavidum* and *R. intricatum*, three new comers from China. They are twiggy plants, growing from four to six feet high, and may be rooted from cuttings. These species are very floriferous Alpine plants, with small leaves and of neat and charming habit.

"The only other species of this group that need be mentioned is *R. micranthum*, also from China, which has clusters of minute Ledum-like white flowers and small leaves." But according to a recent bulletin of the Arnold Arboretum the Japanese *brachycarpum* is superior. The original plant of it, presented to the Arboretum by Mr. Francis Parkman, was lost in transplanting; but Mr. Wilson has sent large quantities of seed from Japan and soon its large pale pink or pale straw-colored flowers may become common here."

The usefulness and the charms of even these species as garden plants are not yet sufficiently appreciated by us. Our English cousins are more fortunate. A writer in a recent number of *The Gardeners' Chronicle* in fact exclaims that if his choice were confined to six varieties of the rhododendron they would be none of the popular hybrids, but (1) the pale yellow *campylocarpum*, (2) the best lavender-blue form of *angustinii*, (3) the brilliant scarlet *neriiflorum*, (4) *roylei* or *cinnabarinum*, (5) the lovely pink seven-lobed *fargesii* and (6) *Thompsonii* with its waxy crimson bells. These are worth recording here because, although they are not hardy in a climate like ours it is possible that from them may be developed hybrids to which may be imparted some of the ruggedness of constitution possessed by American natives with which they may be crossed. They are undoubtedly adapted, according to Professor Sargent of the Arboretum, to our Puget Sound region. There we may expect to find established in time examples of the widest range in variation of size, form, habit and color. There are some that are tall and tree-like, other that are epiphytic and some, like *R. prostratum*, that are carpet plants.

To widen the range even in our vicinity, one may enter among the azaleas, which are now regarded as merely a section of the rhododendron genus, and among which two species, *canadense* and *vaseyi*, both good garden plants, thrive best in a rather moist soil and in the neighborhood of open water. The former is the well known dwarf shrub that from Newfoundland to Pennsylvania and New Jersey covers large areas of swampy land with a sheet of rose-purple bloom, while the latter, also dwarf and of a more open habit, has pure pink flowers of perfect tint.

To a different section of the azaleoid rhododendrons belong thirteen species of which eight are native to the



Rhododendron catawbiense growing wild at 5,000 feet elevation, western North Carolina.

(Courtesy of Harlan P. Kelsey)

Atlantic seaboard of the United States. Five of these, Mr. Wilson notes, are "all good garden plants which take kindly to cultivation and thrive in ordinary soil, in either open or shady situations, and no group of plants adapted to our climate surpasses them in beauty. The first to open their flowers are *R. canescens* and *R. nudiflorum*. Both have fragrant pale rose or pink flowers, of various shades, which appear before the leaves or just as they begin to unfold. The next to blossom is *R. calendulaceum*, the yellow azalea of the Appalachian mountain slopes, which opens its flowers early in June. The color varies from bright yellow to orange or shades of red and the beauty is heightened by contrast with the dark green leaves which are well grown before the flowers open. It is a rather slow growing but long lived plant, from eight to ten feet tall, and the beauty of its brilliant colored flowers is not surpassed by those of any other azalea. The yellow azalea is followed by *R. arborescens*, another inhabitant of the glades of the Appalachian mountains from Pennsylvania to Georgia, which blooms about mid-June. This is a tall shrub, growing from ten to fifteen feet high, with large pure white, very fragrant flowers, the beauty of which is increased by the bright scarlet color of the long exerted stamen-filaments and styles. The leaves are pale-colored and are full-grown before the flowers open. The last to flower is *R. viscosum*, the Clammy azalea or Swamp Honeysuckle, a common inhabitant of the swamps near the Atlantic seaboard, which does not open its flowers till July. It is a shrub of medium size, with small, very fragrant, pure white blossoms covered with sticky hairs and the leaves are often pale bluish especially on the lower surface. The plant is valuable for the lateness of its flowers, which continued to open for weeks when those of most shrubs are past." The Arboretum bulletin of May 9, 1921, adds *roseum*, "an even handsomer plant than *vaseyi*. Although first distinguished and named in France as early as 1912, it has always been confused with other species till quite recent years, and has never received the attention which it deserves. It is a shrub from three to fifteen feet tall with rose-colored flowers which open after the leaves begin to unfold and are more fragrant even than those of *viscosum*. This azalea is common in southern New England and southward to Virginia; it grows in western New York, northeastern Ohio, southeastern Illinois and the adjacent part of Missouri, that is in regions of limestone soil, and the fact that it can grow in lime makes it possible to cultivate it in parts of the country where other rhododendrons do not grow." A still later bulletin adds *anneliesæ*, probably a chance hybrid of *arborescens* and *calendulaceum*, more fragrant than the latter, of orange-red and clear yellow and valuable because it flowers later.

One east Asiatic species, *japonicum*, is perfectly hardy and its large flame-colored flowers are very handsome. It and *R. schlippenbachii*, pronounced by the English writer referred to before as "peerless," broad in limb, pale clear pink and delicately spotted with green, are included among the eighteen best new shrubs at the Arnold Arboretum by the bulletin of July 15, 1920. *Japonicum* mated with *R. sinense* at the Hunnewell estate has become the parent of *R. kosterianum* Miss Louisa Hunnewell, of which the following judgment has been made at the Arnold Arboretum: "If anyone in the United States has raised a handsomer shrub it is unknown to the Arboretum. Its large clusters of orange-colored flowers open as the leaves unfold." Another, *luteum*, incorrectly sometimes named *flavum* but commonly known as *Azalea pontica*, is not hardy in the eastern part of the United States. It is important because it has been used so much as a stock for grafting and in hybridizing.

The American species, Mr. Wilson thinks, should be used much more generally in the gardens of eastern North America; but it is difficult to procure them because very few nurserymen are willing to devote the time and the trouble necessary to raise them from seed, the only satisfactory way to propagate them.

In the absence of these plants and in ignorance of their value and beauty have been employed the so-called Ghent azaleas, a race of enchanting hybrids, but short-lived, indifferently hardy and not suited to the climate of New England, good for forcing purposes but not for the garden in the colder parts of the country. They are the hybrids of *pontica*, which bears bright yellow and fragrant flowers, and *nudiflora*, *viscosa* and *calendulacea* introduced from the United States into England and grown in large numbers at Ghent, Belgium. A somewhat hardier offspring resulted from crossing *R. sinense* and *R. japonicum* with the various Ghent azaleas. These *mollis* azaleas, not hardier in New England than the Ghents, can be grown in the vicinity of Philadelphia out of doors very well if they are given a little shelter. They are grown in dwelling houses in the winter and are very beautiful.

A third section of the azaleoids consists of the Japanese and the Korean. The most important is the scarlet-flowered *Kämpferi*, introduced by Professor Sargent in 1892 and, according to Mr. Wilson, one of the most valuable shrubs that the gardens of eastern North America have received from Japan. Like all the other azaleas mentioned before it is deciduous. It grows to a height of three to eight feet and is a blaze of color for one or two weeks in May, brightest in partial shade. It deserves a good place sheltered by trees, but not too near them, with favorable soil. An offspring from it and *amanum*, raised by Jackson Dawson, is called *Arnoldiana*. Its flowers vary in color. Being a dwarf it is good for the edges of beds and for rock gardens. A large Japanese species is *R. rhombicum*, which bears rich red-purple blooms. The Korean *poukhanense* is a very compact round-headed shrub, the rosy mauve or red-violet blossoms of which are delightfully fragrant.

Of Japanese azaleas the Kurume varieties, from the highlands of that Island Empire, have recently been attracting much attention that is richly deserved by their wonderful beauty and diversity of coloring. The Arnold Arboretum has exhibited remarkable specimens at the shows in Boston; but it is still too early to declare that any of them are for our gardens. Near Philadelphia Mr. A. E. Wohlert, of Narberth, who has paid much attention to the newer Japanese flowering trees and shrubs, has this past Winter been trying out of doors several thousand dollars worth of these handsome shrubs. At the middle of March his report was that the great majority were not promising well.*

Of evergreen azaleas the *amara* or *indica*, which flowers early, with bright rosy-purple blossoms, is hardy as far north as New York City. The finest form of it is known as *hinodegiri*, of beautifully symmetrical shape and which bears its bright scarlet blooms in great profusion. *Hinamayo*, resembling it in form, has larger leaves and its flowers are of a wonderfully clear shade of pink. It is almost evergreen.

ARRANGEMENT ACCORDING TO COLOR

As with tulips and peonies there is not much chance

* Since this was written the freezing during the night of April twenty-first has blasted those flower buds that were fairly well advanced and killed back the leafy tips; but, though the plants had been protected only by a slight natural growth of weeds, the bark of the stems has not been cracked nor the plants injured in any other way. In frames and under glass they are now rapidly recovering and will continue to bloom. The damage to the plants would have been less if they had been well sprinkled, early in the morning after the frost, with cold water.

that rhododendrons will clash if proper precaution is taken in placing the impure and glaring reds. For nice arrangement the hybrid rhododendrons may be divided into four large or main groups within any one of which the different varieties will harmonize fairly well, (1) the red, (2) the pink, (3) the white or substantially white, (4) the lavender and purple. Almost any of the whites may be inserted into one of the other groups, if that should be desired, or can be used in effecting a transition from one group to another. The chief point is that out of any one of the groups should be kept the purple-reds like *Caractacus* and Abraham Lincoln, the magenta-pink of *roscum elegans*, the dark magenta of *catawbiense grandiflorum* and the reddish plum of President Roosevelt or H. W. Sargent. Each one of these "dangerous" colors should be kept by itself or marked off by white.

With azaleas more care is sometimes necessary. *Poukhanense's* color does not harmonize with that of any other azalea blooming at the same time and so it should be kept away from all others to avoid a chance overlapping of blooms. *Hinodegiri* is of a shade so intense that it clashes frightfully with the *amara* and the *mollis* varieties; it can be used with white to make a very charming contrast.

WHERE TO PLANT AND IN WHAT SOIL

The answer to this question also has been framed very well by Mr. Wilson. "Evergreen rhododendrons are mainly woodland and in a measure also Alpine plants and they must never be allowed to get dry at the roots. A situation screened from the morning sun and sheltered from cold cutting winds and where the roots may be kept cool is essential to success. The strong sun in March, which draws moisture from the leaves when the ground is frozen and the roots perforce incapable of making good the loss, is a potent cause of death. This in conjunction with the tender strain in the present day race and the fact that the majority are grafted on the not hardy *R. ponticum* very thoroughly explains the disappointment experienced by American lovers of these plants, and especially those whose gardens are in New England.

"If practicable it is best to plant rhododendrons in association with trees, for by so doing they receive a measure of protection from the sun's direct rays. In thin woods or on the margins of such woods are good sites and if the situation is open and exposed a screen of conifers—Hemlock, White or Red Pine—should be afforded them. If the situation be such that the roots are kept cool by a thorough water supply the nature of the soil (always provided it does not contain lime) is of less importance than is often claimed. Where the White and Red Pine, Birch, Chestnut and White Oak thrive rhododendrons will grow. A soil free of lime, sweet, moist and porous and fairly rich in leaf soil is the ideal. A decomposed granitic soil rich in humus is excellent. In the absence of lime rhododendrons will grow in good loamy soil; but it should ever be remembered that they are humus-loving plants and require to be mulched with leaves and the soil enriched with leaf soil or sandy peat. It is usually assumed that peat is necessary in order to grow these plants; but as a matter of fact a far greater number of the species find a home on the humus-clad rocks and cliffs than in peat swamps.

"In regions where the seasons are milder than in New England these rhododendrons will thrive in positions more or less fully exposed to the sun; but no matter where they are planted they must never be allowed to suffer from drought. The root system of all rhododendrons is fibrous and scarcely descends more than a foot below the surface. Obviously a mass of fine hair-like

roots near the surface of the ground can not withstand drought and the need of a mulch of leaves is clearly shown. On account of their fibrous root system rhododendrons are easy subjects to transplant, provided this be done with a large ball of earth and due attention be paid to keeping them properly supplied with water afterward.

"The hardy members of the azalea section are all virtually deciduous and a majority will stand more exposure to sun and drier conditions than will their evergreen relatives; but drought has very evil effects upon these also. It is advisable to place these azaleas fairly close together and as a ground cover to plant different varieties of heather (*Colluna vulgaris*) and hardy heaths (*Erica carnea*, *E. vagans*), which are not only pretty in themselves but mask the ground from the sun's rays."

To grow rhododendrons and azaleas in limestone areas it is recommended there be made mounds of specially prepared soil. The lime will thus not be so apt to impregnate the site. But in such a situation particular care must be exercised to prevent the plants from drying out.

In agreement with Mr. Wilson's declaration that peat is not indispensable is the English writer quoted twice before; in heavy soils, if the right sort of peat be not obtained it may be absolutely deadly. Particularly if a plant has been grown by a nurseryman in peat is it apt to die when it is moved into a heavy soil where the climate is at all moist.

But at Lindenhurst it has been found that grown in the native soil alone the vigor is less, as is proven by the shortening of the stems. It has there been found best to prepare a bed for permanency by digging in in the Fall, to a depth of three feet, peat at the rate of one barrow-load to fifty square feet and one-half wagon-load of leafmold. The peat, however, should be that containing silver sand; the mucky peat from New Jersey serves well for orchids, but not for the plants here being written about. Alphano also has proven to be quite satisfactory; but it is not put so deep down. For the ordinary border there is dug in in the Fall, to the depth of a foot and a half or two feet, cow manure, well rotted, at the rate of thirty tons to the acre, and in the Spring a layer of leafmold two inches thick. A good dressing of decayed cow manure is applied every third year. Humus in the form of old sod or of any vegetation not sour improves the general conditions greatly.

To provide a mulch of leafmold it is not well to allow dry leaves in the Autumn to remain around the plants; the danger from fire is too real, as the superintendent of Lindenhurst has experienced upon an estate the owner of which declined his advice. Carted away to a pile and held down with a little manure, which is later forked into the mass, the leaves are within less than a year in condition to make an ideal mulch. For the Summer mulching of young stock Mr. Koster, of Bridgeton, New Jersey, advocates the use of cornstalks chopped fine; it provides coolness, retains the moisture and admits the air.

(Continued in the June issue)

You think that one hour buries another, but it is not so. You think that you have parted forever from the things that have passed by you. No, you have not. That which you have done is with you today; and that which you are doing will be with you tomorrow. When the mason carries up the wall, the course of the brick which he laid yesterday is the foundation on which he is laying another course today; and all that you do today on the structure which you are building, will remain as a basis for that which you do tomorrow.—Beecher.

Great Exhibition of Wild Flowers and Ferns in Boston

W. N. CRAIG

AN exhibition of native orchids completely filling the main hall of the Massachusetts Horticultural Society and staged by Albert C. Burrage, president of that society, attracted 25,000 visitors in May, 1921, and it was felt that many years must elapse before such an attendance would again be reached in Boston, but the great show of native ferns and flowers which opened on May 3 and closed May 14 so far surpassed last year's show in attendance that the 30,000 mark was passed on the fourth day and as many people viewed it as at such extensive and extended expositions as the Home Beautiful, automobile and food fairs.

The setting for the show was an ideal one. Criticisms have often been heard of Horticultural Hall for exhibition purposes, some of which are true, but when all walls are hidden as on this occasion, the height of the hall and the cool temperature, many degrees lower than the open air, and the freshness of the exhibits, a week after the opening, all go to prove that some credit is still due the design of the hall and the oft criticised building committee.

The visitor enters the hall via the loggia through a wide avenue of spruce trees reaching the ceiling, below his feet are soft sand, gravel and pine needles, and at once a "woody" odor assails his olfactory organs, that "piney smell" which so many tired city folks long to inhale for a week or two each Summer.

At the entrance end of the hall and facing the loggia is a delightful waterfall, not a tiny miniature affair, but one of at least six feet breadth in the center of a rocky promontory where sixty tons of rocks are effectively placed, and over that from a height of some twenty-four feet the water comes tumbling in a series of short dips at first and a final drop of fifteen feet. Three hundred gallons of water per minute pass over the falls, which at night are especially beautiful with a greenish light thrown from overhead on them. The water falls into a large pool and is carried by a stream to nearly the opposite end of the hall when it disappears in a pipe, flows back behind the rocks and is again pumped over the falls by an electric motor.

The wooden floor of the hall was removed to allow for the construction of the show and concrete beds were laid for the streams and pools over which a neat rustic bridge crosses near the falls. Bordering the stream are irregular borders resembling swamps covered with green sphagnum moss, and planted here are large *vacciniums* in flower, *andromedas*, *osmunda* and other ferns, *Cypripedium spectabile*, *habernarias*, *pogonias* and other orchids, *Sarracenias*, *droseras*, *calthas* and numbers of moisture loving flowering plants, naturally planted.

Around the sides of the hall and rising fifty feet in height are mountains heavily clad with pines, hemlocks, cedars, spruces and other evergreens, scattered through which are found the white dogwood (*cornus florida*), the shadbush (*Amelanchier canadensis*), the great laurel (*Rhododendron maximum*), mountain laurel (*Kalmia latifolia*), the sheep laurel (*Kalmia angustifolia*), *Viburnum dentatum* and other native shrubs and trees in flower, while at lower elevations among crannies and crevices, or on the sheer face of the moss covered rocks are masses of all the ferns native to Massachusetts, forty-seven in number, and near the base irregularly and tastefully placed are *cypripediums*, mayflowers (*Epigaea*), violas, asters, bluets, trilliums, hepaticas, ranunculus, anemones, bloodroots and numerous other wild flowers,

some eighty-three varieties in all. I failed to see an omnipresent friend, the dandelion and some others, probably because they are classed as aliens and not native, albeit they make themselves very much at home here.

The exit from the hall is through a dense avenue of spruces and so great is the attendance that except in the earliest morning hours a one way passage only is possible, and progress is naturally very slow. It is particularly pleasing to note the great delight of the thousands of city children over the delightful show, and it is worth a whole lot to watch their pleased faces, just as it is to see and hear the remarks of older people, once country dwellers, whose memories went back to the old country farms where their early years were spent. At this show they met many old familiar friends.

The plants used in this show were all forced in the greenhouses of Albert C. Burrage, of Beverly Farms, and much credit is due his able superintendent, Douglas Eccleston, and his corps of assistants for the skill in timing the exhibits and the good taste shown on the construction of the many charming features of the exhibition.

Illustrated lectures were given on New England wild flowers, their cultivation and protection as follows by the Massachusetts Horticultural Society and at each there was an attendance of between 400 and 500.

Thursday, May 4. Some reasons why wild flowers are rare, by Prof. Merritt L. Fernald, Howard University.

Friday, May 5. The conservation of our wild flowers, by Herbert W. Faulkner, Washington, Conn.

Saturday, May 6. The cultivation of native plants, by Dr. R. T. Jackson, Petersborough, N. H.

Monday, May 8. The naturalization of wild flowers, by Norman Taylor, Brooklyn Botanic Gardens, Brooklyn, N. Y.

At a meeting of the board of trustees of the Massachusetts Horticultural Society held May 8, the George Robert White gold medal of honor for distinguished services rendered to horticulture in the year 1922 was awarded to Albert C. Burrage. Mr. Burrage is serving his second term as president of the Massachusetts Horticultural Society and also of the American Orchid Society. In 1920 he made a magnificent monthly exhibit of orchids at Horticultural Hall, in 1921 he staged the great show of native orchids in May and was an extensive exhibitor of ferns, *Selaginellas* and orchids at the great tropical fern and orchid show in September, and last but not least the present notable show of wild flowers and ferns. Mr. Burrage is a very amiable and democratic gentleman, keenly interested in the advancement of horticulture and the award is well merited.

At the meeting of the American Orchid Society held in Boston on May 6, it was voted to hold a great national orchid show in Boston in 1924. The Orchid Society will offer on this occasion special gold, silver and bronze medals, and similar medals will also be offered through other societies who carry orchid classes on their schedules.

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Beaver Lodge

The Country Estate of H. E. Partridge
Shell Lake, Wisconsin

THIS place was originally a spring-invested swamp; much tiling and filling had to be done in order to gain a foothold. By taking advantage of the beautiful spring lake and its outlet several artificial pools were formed. As the soil below the surface is extremely cold, every specimen planted had to be carefully selected in order to be a success. Mostly native conifers from six to twenty feet high were used which were dug and transplanted with a frost ball, together with such conifers as will stand the trying conditions of twenty to forty degrees below zero.

Rocks and boulders played an im-



The side view of Beaver Lodge.



The front view of Beaver Lodge.

portant part in this semi-Japanese landscape. Placing them in a natural position, creating an aged appearance by sinking them nearly two-thirds and not omitting the

harmonious coloring of the rocks, a very unique effect was obtained. Mugho Swiss Mountain pines, the different sabinas, rock plants and hardy perennials were liberally employed.

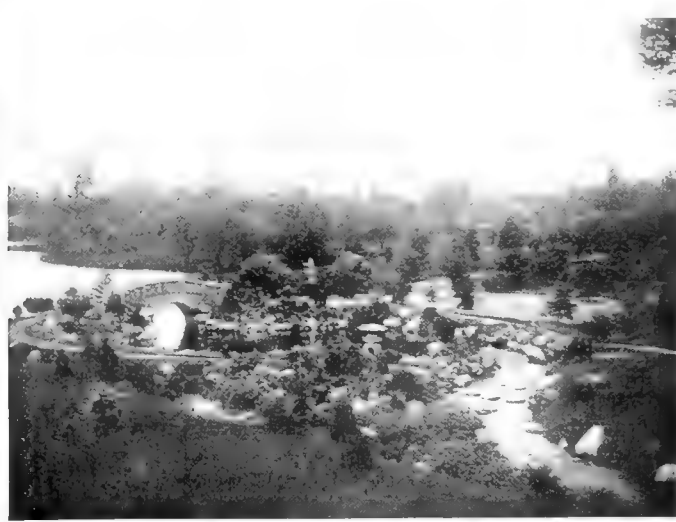
The Japanese garden is not the only delightful feature of Beaver Lodge, but Mr. Partridge has followed the style now becoming very popular on American estates, of combining the vegetable and flower gardens which takes away the monotonous appearance of the straight rows of vegetables, and if properly arranged according to height, flowering season and color, adds attractiveness to the entire layout.

Theodore Wirth, the well known authority on landscape architecture, played a prominent part in the planning and laying out of the landscape and in 1914 turned it over to Charles Schrall, the

present superintendent, who together with his genial and Nature-loving employer still plan further improvements now that labor is more easily available.



Swamps and bogs have given way to velvety lawns and specimen conifers. The wooden bridge has given way to a beautiful scrolled concrete bridge. Paths surround the entire semi-Japanese plantation.



The same scene taken earlier in the season. Here the "stepping stones" across the creek are more distinct, which is a typical Japanese feature, as well as the arrangement of the rocks.

Beautifying Home Surroundings

ARTHUR SMITH

AFTER the completion of a house, the grading around it comes up for consideration. Very frequently a good deal of money is spent unnecessarily in this direction, and which could be put to a better use in making a garden, as in many instances the money is used in ways which do not increase nor create beauty. This waste is especially noticable in the matter of terraces. Under no circumstances does a terrace in itself create anything but discord in the landscape. We have never been able to get the point of view of those—unfortunately numerous—people who find something pleasing in the idea of a terrace. Many, whose lawns were, or might have been made, the most beautiful of gardens, have spoiled them by terraces. For some unexplainable reason some persons are possessed with the idea that every house, no matter what its position should have a terrace, and they spend large sums forming terraces even upon level ground. Elaborate terraced gardens in the wrong place prevent the formation of beautiful lawns, although a good lawn is one of the most pleasing things in a garden.

An insignificant looking house with a fine, unbroken lawn gives invariably a better effect than a fine house with terraces in front of it.

When a house is erected upon ground considerably higher than its immediate surroundings, some terracing may be necessary to afford a sufficiently level space for a drive to approach it and to turn round, and in these cases a terrace becomes a necessary evil; as it is also when required for the formation of playing lawns. When such circumstances call for the existence of a terrace there still is no reason for the sharply graded slopes like a railway embankment. Sharp, green angles thus formed are the very height of unnaturalness.

After we have settled the essential approaches and levels in close proximity to the house, the natural form and lines of the earth itself are invariably the best to follow, and in cases where bad planning has been the reverse of this, it is often well to face any labor to get the ground back to its natural grade where it has been disfigured by ugly or needless banks, lines or angles.

The next thought is generally given to providing the house with some shade. Frequently this is overdone, and the house ultimately becomes so shut in that the necessary circulation of air is prevented and in the early Fall before the leaves drop the house is rendered dark and damp. This is more especially the case when such trees as the Norway and Silver Maples are used for the purpose. The dense shade these produce combined with their roots also create conditions which prevent anything else growing or thriving under or near them. From all points of view these two species should be discarded from home surroundings, as there are so many other kinds which not only give all necessary shade but which also possess many prominent features of beauty which these Maples do not have.

In providing shade trees several points should have consideration, especially with those who use their homes all the year round. There is of course the shade; then there are species conspicuous for their floral effects, followed in the Mountain Ash, as one instance, by brilliant berries; then there are the beautiful color effects produced by the Autumn foliage.

Autumn color affords us opportunity to have a landscape as spectacular and as gorgeous as in any other season, and this point should be remembered also in connection with shrubs.

The number of good shade trees without any objectionable features is large and while it is obviously impossible to mention all of them, we would like to call attention to the merits of a few of the least used kinds.

We have always thought that the Oaks should have a more prominent position among trees for this purpose. The fact that they have not is to a great extent the fault of nurserymen whose horizon is bounded only by the commercial side of the question, and it is undoubtedly a truism that when commercialism comes into competition with art, art always suffers. Grass and other plants will grow under Oaks when they will not under Maples, and their shade is sufficient for all purposes without creating darkness. The two best are the Pin Oak (*Quercus palustris*) with its graceful outlines and the Red Oak (*Quercus rubra*), the fastest growing, with broader leaves and more spreading branches; both are a brilliant spectacle in the Autumn. The Lindens are good, especially for large lawns, and their flowers give off a delightful perfume and are much loved by bees. The ruddy grown bark of the Lindens gives a very cheerful Winter note to the landscape.

From all the points of view by which one measures the all round beauty of a shade tree we know of none which comes up to the Sweet Gum (*Liquidambar styraciflua*). Its star shaped leaves afford a unique feature, and these in the Fall give wonderful kaleidoscope colors of bronze, orange, lemon and scarlet. Among flowering trees there are the Horse Chestnut and Yellow Wood (*Cladastris virgillia*). *Catalpa speciosa* is another one conspicuous for its floral effects, but the dropping of its seed pods makes it a dirty lawn tree.

In connection with places of somewhat small area, the question of using fruit trees, apples, pears and cherries, for shade purposes should be considered. Not only are there no reasons against their use for this purpose, but several may be advanced in their favor. They may be grown to give as much shade as any other tree of the same age; no trees are more beautiful when in flower, and it is scarcely necessary to emphasize their beauty and usefulness when in fruit.

Considered as a whole the judicious planting of shade and ornamental trees not only affords an abundance of comfort and pleasure, but it enhances the value of real estate more than an equal amount of money spent in any other manner. Persons looking for investments in homes are not attracted, but repelled, by barren home surroundings. There is always something charming in the smallest cottage having a good selection of trees properly placed about it.

Trees, as apart from shrubs and herbaceous plants, should be the first things placed in position. They should not, however, be scattered about the entire grounds, planted in rows, orchard, or checker-board fashion. All grounds, no matter how large or small, should have an open space for lawn, and trees should be located, placing the trees, in addition to those near the house for shade, along the outer lines of the property, with groups for any necessary back-ground or screen. In all cases it is important to avoid planting too many trees, and in fact too much of anything tends sooner or later to spoil home

surroundings. In this, as in all other connections, climatic and soil conditions frequently place some limitations upon the kind of things which one should plant, and it always pays to engage the services of an expert rather than a salesman, pure and simple.

A good deal of careful consideration should be given to the planting around the house foundation. A beautiful house in a fair landscape is the most delightful scene of the cultivated earth. The union between the house and the ground near it—a happy marriage it should be—is worthy of more thought than is generally given to it. If one does not care to carry out the landscape development of his entire property all at once, the first thing he should do is to tie the house to the grounds by suitable foundation planting. For all the year round effects such plants should invariably have evergreen foliage, and produce flowers and ornamental berries. While it is not absolutely necessary it is desirable that each species should be capable of exhibiting during the year all three of these features. It is extremely rare to find foundation plantings combining these characteristics, and far too many of them consist almost entirely of the most unsuitable subjects, such as Pine, Spruce, Fir, and other cheaper fast growing things which in a few years will have to be removed. It is in every way preferable to use dwarfer, slow growing plants of high quality which are less commonplace.

Without enumerating all of the better class plants which may be used in creating a perennially pleasing foundation planting, we would like to mention a few of the better and in some cases, the least known subjects.

For the background the upright *Cotoneaster simmonsii* is good, as it gives evergreen foliage, pretty flowers and bright red berries. *Ilex crenata*, Japanese Holly, is notable for its rich, glossy foliage and blue-black fruit. Another interesting plant for the back, but not so compact as the above, is *Viburnum rhytidophyllum*, Evergreen Snowball, its leaves are a rich green all the year round, the white flowers being followed by jet black berries. Having the same characteristics as its upright relative, the trailing *Cotoneaster microphylla* is very effective in front, and where anything low growing is desired the Japanese Yew, *Taxus cuspidata* is one of the best foundation plants from the point of view of its evergreen foliage alone. This does well both in shade as well as in full sun. While not absolutely evergreen, excepting in the South, *Abelia rupestris* is a valuable dwarf shrub, as its chaste, light pink, bell-shaped flowers are produced in great profusion from June until the advent of Winter.

For the quite shady side of the house that gem among our native Rhododendrons, *R. carolinianum*, should always have a place, and the well known Mountain Laurel, *Kalmia latifolia* with its pink and white flowers in June is also suitable. Among dwarfer subjects for a shady situation are the evergreen Azaleas, *Andromeda*, *Leucothoe*, Scotch Heather, together with its lovely flowers of intense fragrance, and *Daphne cneorum*.

Use should be made of the unique little ground cover plants like *Pachystima canbyi* and *Pachysandra terminalis*. Dotted about towards the foreground among taller things the Lily of the Valley and hardy double Violet are very effective. Pleasing use can also be made of Native Ferns.

A good deal of foundation planting is done by the use of the dwarfer and slow growing *Thuya*, *Retinospora*, *Biota* and *Buxus*, these do not, however, present so many interesting and pleasing features as plants like those previously mentioned as they are simply evergreens and when used exclusively become monotonous.

LOYALTY TO THE AMERICAN TRADE

THE severe frost that has recently been experienced in Holland, bringing disaster to a large percentage of the stock of Fall bulbs, will make it difficult to secure a sufficient supply of bulbs of the best quality. This calls strongly to mind the practice of so-called "representatives" of Holland growers who tour this country during the Spring and early Summer months, soliciting bulb orders, and who return to Holland in July when they buy up the remaining bulb stock of the Holland growers. The significant point is that they do not buy the bulbs until they have sold them in this country. In this way it is impossible for these so-called "representatives" to secure the best bulbs as they can purchase at that time only the stock that has been left over. This season with the bulb supply in Holland so greatly reduced, it will be necessary for them to buy up stock anywhere and everywhere in order to fill their orders. One need not over-exert one's imagination as to the quality of the bulbs they will be able to ship to America this Fall.

Reputable and dependable American importers of Holland bulbs buy the bulbs before selling them, contracting a year in advance with reliable Holland growers for their cultures. They thus make certain of securing only the best quality of bulbs for the American public. With the recent heavy damage to the stock of Fall bulbs these firms as well as the so-called "representatives" are going to find it no easy task to obtain bulbs sufficient to meet the demand. They can, however, be depended upon to import no bulbs of questionable quality, for the Holland growers from whom they secure their bulbs plan in advance to raise a crop of bulbs large enough to cover any possibility of loss by natural causes.

Another dangerous factor in purchasing bulbs from "representatives" of Holland growers lies in the transportation. Upon placing their orders with Holland growers they give instructions to ship the orders direct to the purchasers, for they provide no means of looking after the bulbs on their arrival in this country. As a general rule, fourteen to fifteen days are required from the time of leaving Holland to the arrival of the bulbs at the pier on this side. Here the transportation company more often than not puts the cases aside for a week or ten days. Then another three to four days, or more, are required to transport the bulbs to their final destination. With such a lapse of time the bulbs are quite likely to become blind, from being overheated in the cases, while the cases are lying on the pier in the warm September sun, the month when such bulbs are usually shipped to this country, and their productive value is thus entirely lost. It is not possible to detect that the bulbs have become blind after they have cooled again, so the purchaser on the receipt of the bulbs has no knowledge of this condition, nor does he gain this knowledge until the bulbs have been planted and failed to bloom.

Immediately upon their arrival at the piers, cases of bulbs which have been packed with care in Holland, imported by reliable American firms, are opened for examination. If there are any indications that the contents are overheated, the bulbs are cast aside so that there will be no risk of sending blind bulbs to customers. Every precaution is taken that the bulbs with which the orders of dependable American firms are filled, are in perfect condition. The American public should think twice before placing an order with a "representative" of a Holland grower and then should place it with an American firm whose reputation is well established.

Budded versus Own Root Roses

W. N. CRAIG

I AM always interested in my good friend Arthur Smith's articles appearing each month in the GARDENERS' CHRONICLE OF AMERICA and usually agree with what he says. I must, however take exception to some statements contained in his second article on "Roses and the Rose Garden" on page 113 and 114 of the April issue.

Mr. Smith states, "When a rose is upon its own roots it is less liable to Winter kill, for if it should be killed to the ground, it will invariably send up new growth from below." He further states, "Roses on their own roots are always more permanent than grafted ones," "there is always more dying out among grafted or budded roses in connection with the teas and their hybrids than own root ones." I cannot agree with any of the foregoing statements as my experience of 32 years in New England has amply proven that a very small number of own root roses are of any value in our climate, and that to achieve success with hardy roses it is absolutely necessary to use budded or grafted stock.

I can show Mr. Smith, or any own root enthusiasts, plants of such Hybrid Perpetuals as General Jacqueminot, Magna Charta, Mrs. Laing, Mrs. R. S. Sharman Crawford, Paul Neyron, John Hooper, Baron de Bonstetten, and Mme. Gabriel Luizet, which have stood 25 to 30 years of New England Winters where temperatures of 15 to 25 below zero are sometimes recorded, with nothing but soil protection, and all are plants worked on the *manetti* stock; and plants of Frau Karl Druschki, Gruss an Teplitz, Gloire de Dijon and Mme. Caroline Testout planted nearly as long, all worked on *manetti* or seedling briar stocks. I can take any sceptics to an old garden where there are Hybrid Perpetuals planted as much as 44 years ago and still hale and hearty, but I do not know of any one in our climate who has been able to keep own root roses alive more than two or three years with the possible exceptions of a few of the more vigorous ramblers and H. P.'s.

Budded or grafted roses have much greater vigor than own root roses, and prove far more Winter hardy. While it is true that there is some trouble with the suckers from the stocks, these possess much greater vigor than the roses themselves, are very thorny and carry 7 or more leaf petioles compared with 5 on the roses so that even an amateur can readily distinguish them.

If as Mr. Smith states, own root roses are so much the best why is it that such firms as Bobbink and Atkins work all their hardy roses on *multiflora* stock and this in Mr. Smith's own state? Whether *multiflora* will prove as good a stock as *manetti* time alone can tell. It has not proven successful for indoor roses and time is needed to prove its value outdoors.

A majority of amateurs and far too many professional gardeners plant roses too shallow, the union on budded or grafted plants should be covered fully three inches. When it is above the ground success cannot be attained.

For the warmest states own root roses are, I believe, the best, but I would earnestly warn any readers "in the more northern states" not to plant them under any consideration. In Great Britain where as fine hardy roses are grown as anywhere in the world, nearly all H. P.'s are worked on the *manetti*, and Hybrid Teas on the seedling briar. It is not possible even in that climate to have vigor, longevity and floriferousness, from own root roses.

Paul Neyron is Mr. Smith's choice as the best H. P. While a fine old rose carrying a very large but unsym-

metrical flower, I do not consider this in the same class as that finest of all white roses, Frau Karl Druschki. While that beautiful pink Mrs. John Laing owing to its persistent flowering qualities (which qualities Druschki also possesses) is also much superior.

Among climbing or pillar roses Mr. Smith does not mention the beautiful Tausendschön, not so vigorous as Dorothy Perkins (which he also ignores) but very reliable in New England and an early bloomer. Silver Moon, one of Dr. Van Fleet's charming introductions is the most beautiful white climber we have; it however, has some Cherokee blood in it and is a little more tender than others, but we find that by cutting this and other climbers loose just before the ground freezes up, laying them down and sprinkling a little soil over them, they winter successfully. We never cover any hardy roses with strawy manure as it makes an ideal meeting place for field mice, and the destruction caused by them each Winter is very serious.

While it is true that of late years the H. T.'s have largely usurped the older H. P.'s in popularity, owing to their more persistent flowering quantities, in the colder New England states the H. P.'s can only be successfully wintered out-doors. Where H. T.'s are grown, it is necessary to carry them over Winter in frames, in cold cellars, or by burying out-doors. Any one foolish enough to plant own root roses in these States will not have to wait more than one year to learn of their mistake.

FLOWERS AS TEACHERS

(Continued from page 145)

*One of them holds a flower
Under the other's chin;
The big hats shade their faces
From the sunshine stealing in.*

*The buttercup's bright reflection,
A dapple of golden hue,
And the smiling lips repeating
"I like butter; do you?"*

Genie L. and Florence J. Boyce.

The dainty, fragrant Trailing Arbutus is supposed to imply "welcome," and can anyone familiar with the tradition that this beautiful, brave flower, the first to greet the self-sacrificing Pilgrims after their Winter of hardship and misfortune, doubt it was a welcome sight and bought to their sad hearts a renewal of hope and, as Whittier tells us in his poem "The Mayflowers," a promise that

*"Warmer suns ere long shall bring
To life the frozen sod;
And, through the dead leaves of hope, shall spring
Afresh the flowers of God."*

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Work for the Month in the Garden

SAMUEL GOLDING

BY this date, around the middle of May, it can generally be regarded as safe to plant outside the more hardy plants that have been raised in the greenhouse and frames. Their capacity is always over-taxed during the early May days and any opportunity to relieve the congestion is welcome. The recent severe frosts and cold winds remind us that some precaution is necessary, that it often pays best to go slowly, and that, if we take early chances, we have a reserve supply on hand. One must be careful to see that the stock is thoroughly hardened before planting out into its permanent quarters. Always utilize the most sheltered and sunny borders for early crops.

If showery and warm weather prevails, the growth of the early sown seeds becomes more apparent each day. Peas should be staked early to keep them growing erect. Keep up successions of late peas until the end of the month. After that time peas cannot be regarded as a paying crop to plant in most localities. Sweet corn and lima beans take the place of peas, when their usefulness is past.

Plant out tomatoes, sweet corn, squash, and all of the more hardy vegetables raised in frames, but it is wise to defer the planting out of egg plant and the more tender sorts until the ground is warm.

Sow bush limas, melons, cucumbers, squash, okra, etc., and pole limas, if climatic conditions permit. There is nothing gained in hurrying on with the planting of this crop of the soil is wet and cold. Sow string beans at frequent intervals; also carrots, beets, and salads. The cultivator should be kept active between the rows of these crops when growing.

Plant out the early celery and transplant the latter seedlings into well prepared soil to encourage good root action, which is an asset when they are set into their growing quarters.

Cut over the asparagus beds daily, removing all weak and deformed growths, which tend to exhaust the crowns to no useful purpose. Give the beds a dressing of super phosphate, or other approved fertilizer.

Mulch the strawberry plantations with clean straw before the fruit is far advanced, which prevents damage from heavy rains, and contact with the soil.

All varieties of annuals can now be sown outside for late blooming. Those which were sown previously will require transplanting, and will soon make splendid plants to take the place of the Spring blooming species. Some of the most hardy, and those raised in frames for early cut flowers, can be planted out where they are to bloom. Among such are candytuft, larkspurs, annual phlox, antirrhinums, verbenas, stocks, asters, which will be safe if planted where they can secure protection if necessary.

The flower gardens will be a blaze of color during the first weeks of May, as the cold weather of April retarded many plants which usually bloom during the last weeks of that month. Flowering shrubs and spring flowers at this time make a display unsurpassed during the whole year. Darwin and other May flowering tulips supply the main feature in the beds, their great range of colors being admirably adapted for color schemes in which the Breeders are a wonderful asset. At this season it is an excellent plan to make notes for future reference as to the outstand-

ing merit of any particular varieties and their qualities for our special purposes.

Disbud peonies if fine individual blooms are desired. If the weather is dry and the soil light, a good manual watering will assist them when their buds are swelling. These plants have a deservedly wide and ever growing popularity, their varied forms and colors make them second to none as a cut flower for home decoration and an embellishment for the garden.

Plant out *Hyacinthus candicans* and *gladioli*. As sweet peas are growing rapidly, it is necessary that they be well staked, or if trained on netting, they should be tied up frequently.

Keep an eye on rose bushes, watching out for the small caterpillar which destroys the young growth and buds. It is easily detected as it rolls up the leaves and hides in the center, where it can be dealt with. Spray early aphids and mildew on these bushes.

Delphiniums, campanulas, hollyhocks, and other early Summer flowering plants should be staked before they have grown too tall and can be easily ruined by sudden heavy rains and winds.

Cut back flowering shrubs after they have passed out of bloom, and see that newly planted shrubs and trees do not suffer from drought. When watering them, do it thoroughly.

JUNE

All parts of the vegetable garden will now have their full quota of growing crops, and one of the most important tasks will be the thinning out of young seedlings as soon as they are large enough to handle. It is obvious that this should be done early so that the plants to be raised will not be drawn or spindly from being too crowded at the early stages. It is equally as important with plants grown outside as with those grown under glass that they have plenty of room for development to encourage stocks and sturdy plants.

The hoe and cultivator should always play an important part in the garden during this month; frequent and deep soil stirring must be the order of the day. Not only does this conserve the moisture in the soil, but it keeps down weeds which are very persistent throughout June, and especially so, after warm rains. Artificial watering will have to be resorted to and when necessary, give it thoroughly. If watered sparingly, the plants are more injured than otherwise as the first hour's sunshine dries it up, leaving only a baked surface.

To fight the various pests which will now trouble us from time to time requires our diligent watching and constant attention. Spray for fungoid and insects; caterpillars, cut worms, rose bugs, potato bugs are among those to be combated. The gardeners of today are fortunate in having so many good antidotes to keep these enemies in check.

To drive off potato bugs which appear on warm, sunny days, cultivate well between the potato hills and spray. Paris Green is effective if flea beetle is prevalent. Dust the plants over in the mornings when the dew is still on them, with lime and soot. It is a persistent insect and often demands strong measures to get rid of it.

(Continued on page 157)

The Greenhouse, Month to Month

GEORGE F. STEWART

THE last half of May and the first part of June is in all probability about as trying a time for the greenhouse man as any part of the year. At this season, the weather is quite changeable, especially along the New England coast. The east winds are proverbial in the region mentioned and one has to be watchful to avoid draughts. The greenhouses may not have an ideal location and ventilation may not be all that one desires to give the proper amount of air without being draughty. My opinion is that the last word has not been said, by greenhouse architects, about the proper mode of ventilation, for these structures in a variable climate such as the above. A greenhouse man who in early life has developed a gift for careful watering and ventilating, is a greater prize than an expert on composts, and when saying this, I do not belittle a knowledge of soils. I know that with many it takes years of experience to know at a glance when a plant needs water, or when stepping in at the door of a given compartment to know if the temperature is right; so let the older men have patience with youth if the love of plants is there.

Cool house hard wood plants that were potted after flowering last month will now have a good grip on the new compost, and may be pruned into shape for another year. Cut the shoots near the top of the plants well back. The growth on the sides and lower down will not be so strong, and only the strongest will need shortening. Later on these plants will need looking over and some of the stronger breaks should be pinched again before they are allowed to get too long.

The camellias are growing freely except perhaps some of the very late flowering varieties. A sprinkling of Clay's fertilizer, soot, and weak cow manure water we have found beneficial for them. Applications once a week alternately are enough, being sure that they are watered with clean water two or three times between doses. This may be kept up until the flower buds begin to swell. Insects such as scale and mealy bug are often found on camellias, but may never be seen if weekly syringings with some standard insecticide such as Aphine is given. This also applies to acacias and other hard wood plants that are attacked by any of these pests.

Do not forget to have batches of *Stevia* started for Fall use. Cuttings root readily and we find it best to grow them along in pots. The tall form is known as *S. serrata*, having a dwarf form, var. *nana*. Botanists, however, tell us that the proper name is *Piqueria trinervia*. I have always found it best to grow both the tall and dwarf forms as they both have a place in decorative work.

Calceolarias intended for exhibition in the early part of May should now be staked out. Keep them as cool as possible and shaded from strong sunshine. By pinching, the *Stewartii* type may be had as late as July. We allow about seven weeks from date of pinching until the time they are wanted to flower, at this season of the year.

We have *Boronia* and *Pimelia* flowering just now. Any that need a shift after flowering may be potted in a compost as advised last month for acacias and *Eriostemon*. After they grip the new soil, cut them back about half way between the flower and the place they were cut back the preceding year. *Pimelias* are handsome plants and should be more grown. They may be flowered in small

pots or grown on into larger specimens which will be admired by every plant lover. Syringe them well every few days, as red spider has a great liking for them. Do not forget to fumigate about every nine or ten days in the cool house.

In the tropical house, any *Anthuriums*, such as *andracanum*, that have been mossed with sphagnum, because they were getting too leggy, will now have rooted well into it and may be cut over and potted into suitable receptacles. The old stump will break and furnish more plants if desired later on.

Croton, or to be more modern, *Codicum*, cuttings that were rooted earlier in the year, should soon be ready for six-inch pots which will be a large enough size for the first year. I believe that they go through the short days better if they are well pot bound by Fall. Keep them well up to the glass and have a light shade over them until the end of September. A good fibrous loam with some sand and charcoal added to keep sweet and porous, is a fine potting medium. Some sheep manure and bone meal may also be added. Watch carefully for bug scale and red spider.

Fancy leaved caladiums are very useful plants to fill up any room that may be vacant during the Summer. Three tubers to an eight-inch pot can be grown into a nice plant. Pot in a fairly rich loam with a moderate quality of sand added. Soft coal soot will also help to bring out the right coloring. A bench that can be lightly shaded is what they require as regards light. Avoid bottom air.

Ixoras are pleasing Summer flowering plants and if grown in good loam and not over potted, will flower freely. A plant or two of *Medinilla* will also always attract attention when in flower. The varieties *amabilis* and *magnifica superba* are very striking.

Among twining tropical shrubs that flower freely are *Allamandas*; and *Clerodendrons*, which can be had in flower from the last of March until October by ripening the wood by drying off after a good growth is made. *Dipladenias* begin flowering in June and will last until Christmas. Though classed as tropical plants, these twining shrubs will grow better and give more flower in a lighter and more airy house than the majority of stove plants. Spray all these plants when not in flower on all bright days with clean water, but unless there is a good deal of heat in the pipes during the night. I believe it is more advisable to have the foliage dry over night.

Dendrobium nobile, *D. phalanopsis*, and others will now be showing their young growths, and great care in watering must be taken to avoid damping off of the young shoots. Dipping in a tank of water, keeping the water away from where the young growths are, I find the safest method at this stage, and until the roots are seen to be developing from the young shoot when the hose may again be used, and syringing practiced in the early part of bright days. *Oncidiums* also need to be watched for the same trouble with their young growths. What are known as intermediate house orchids should not receive abundance of air on all warm days, and from now on a little over night, according to the weather. When the thermometer goes above 70 degrees out doors, as it will now often do, I have never observed that plenty of fresh

air harmed any plant, provided the plant becomes accustomed to it. Plants of all kinds can, I believe, suffer from lack of fresh air as well as human beings and many of them can stand a lower temperature than the one in which collectors tell us they found them growing in out doors. The illustration on this page is a case in point: a plant of *Croton Baronne de Rothschild*, about twenty years old, whose treatment during all that time I have been familiar with. It has been used as a veranda plant from the time it was six years old, from the middle of June until the middle of September every year. Its position has been on the end of a veranda without any cov-



Croton Baronne de Rothschild.

ering overhead, no protection whatever, and facing due north. The photo was taken in September when the color was excellent, and the foliage, as can be seen in the picture, was well furnished. The plant has always been wintered in a palm house where the thermometer stood about 55 degrees, and has never been coddled during its life in a hot, humid atmosphere. Every Fall when it is to be housed, the points are nipped out of all the strong shoots. This has taken place six miles north of Boston.

The work in the grape house hereafter will largely be routine; pinching main shoots and laterals; tying and thinning grapes, according to the stage of advancement of the crop. Do not over crop the vines which is more often the tendency, owing, I suppose, to the large amount of surplus bunches that come on a vine. It is hard to advise in this matter when one does not know all the conditions; everyone must learn by experience. In a span roof house, twenty-five feet wide, it is better to be well under thirty pounds to the rod. It takes an expert grape grower to crop a vine to the limit and to come out safely, leaving his canes in good condition for another year. Houses that are taking on their blooms require abundance of air, top and bottom, on mild days, and should have a free circulation over night. If properly watered when they show signs of coloring, they should ripen their crop without any more.

Early peaches and nectarines will now be ripening and may be given plenty of air on all favorable occasions. Careful watering must be practiced or the flavor of the

fruit will be affected. On later trees see that the shoots do not overcrowd the trellis and remove all weak surplus growths.

Melons may be grown in any empty greenhouse that has been used for bedding plants. Sow seeds in small pots. Make little hills of good rich loam on the bench, fifteen to eighteen inches apart. More loam can be added as they grow. Train to one shoot, and set about three fruits to the plant. Blooms must be hand fertilized to make sure of a set all at the same time, so that the fruits on each vine will all swell together.

If not fruit is grown, be careful that the trees do not suffer from lack of water. The plants are always grown in the smallest receptacle possible, and must be liberally fed with standard fruit manures. It is better to use variety in stimulants but do not overdo. The directions given by manufacturers are as a rule reliable. Of course, I would not discourage individual experimentation in this line, as much valuable experience is gained thereby. Isolate a few plants, say an apple, a pear, and a peach tree, etc., and try them out, but on no account risk your entire crop. Syringe the trees well on all bright days until the fruit approaches the ripening period.

When the fruit is gathered, give them a thorough spraying and by the end of June they may be set out doors to ripen the wood for next season. Have them always near water, as they will require attention several times a day.

Keep a note book, and make original observations, as plant growth is a wide field to work on, especially under artificial conditions. Keep your ears open for hints from others, for sometimes a very poor grower will drop useful information which he himself may not be able to put into practice. Emerson learned much from his everyday acquaintances, and his strong point was the faculty of expressing what he saw and heard, mostly among his Concord friends.

WORK FOR THE MONTH IN THE GARDEN

(Continued from page 155)

If the okra does not appear to be coming up well, look over the rows carefully as one often finds that they have been eaten off by cut worms, just as they are breaking through the soil. Poison bait is generally effective in combatting these insects, but a more certain method for the small garden is to look over each plant and destroy any cut worms that may be found.

The completion of the Summer bedding will be the object in view as all are eager to get the plants in the ground and well established before the very hot weather comes. Plants taken up from the Spring beds which are to be propagated and grown on again, should be laid in at once in a shady place until they can be properly cared for. All tulips which must be removed should be lifted with care and heeled in the soil in a half shady place to ripen off the bulbs before storing.

Plant out cannas and dahlias. It is a good plan to place the stakes, or other means of support, at the time of planting, for if this is done when the plant is growing vigorously, the tubers and roots may be injured. Plant another batch of *Gladioli*, which can be relied upon to make a display towards the end of September.

Build thee more stately mansions, O my soul,
As the swift seasons roll!
Leave thy low, vaulted past!
Let each new temple, nobler than the last,
Shut thee from heaven, with a dome more vast,
Till thou at last art free,
Leaving thine outgrown shell by life's unresting sea.
—O. W. Holmes.

Departments of Foreign Exchange and Book Reviews

ANNUALS IN GARDEN DECORATION

The Treatment and Conditions Suitable for the Different Kinds

TO the older enthusiast in gardening it has long been common knowledge that in annuals we have long harbored angels unaware, for what we do in the greenhouse, as a matter of course, with a few pots of *Clarkia*, *Godetia*, *Schizanthus*, *Viscaria* and Sweet Peas can be as readily reproduced in the open garden on a larger scale, the main difficulty being to convince ourselves that the thing is worth doing. Let us, however, concede that the methodical and conscientious care we expend yearly in raising China Asters, Antirrhinums and Stocks can be extended to cover the whole family of annuals, then the result will be an enormous gain to the garden both esthetically and practically, and for ourselves an addition to our plant knowledge that will agreeably surprise us in the breadth of outlook that it entails.

In the decorative scheme of the garden the greatest success follows when distinctive positions are chosen and always with due regard to the plants' requirements. Gourds are important fast-growing annuals for clothing trellis-work and lightly constructed pergolas, and require rich, light soil in a sunny position. Sweet Peas are ubiquitous, but are best displayed in clumps, using bushy sticks or wire supports for them to cling to. *Ipomoea imperialis*, also a climber, will succeed in ordinary garden soil, while *Tropeolum majus* and *canariense*, though grateful for some slight preparation, will, however, often give wonderful results in very indifferent soil; like Sweet Peas, the two last-named display themselves to advantage over bushy sticks or any light, wire trellis-work.

A section of annuals that luxuriates in hot positions, where the soil is rather poor in quality and not likely to become over-saturated with rain, includes *Dimorphotheca*, *Eschscholtzia* (biennial, but always most satisfactory when grown as an annual), *Linaria alpina* (perennial), *Calceolaria mexicana*, *Portulacas* and *Nemophila insignis*. Then there are two annuals that ask for quite different conditions: the diminutive *Ionopsidium acule* prefers slight moisture in the soil and enjoys some shade during the hottest part of the day; while the other, *Limnanthes Douglasii*, is an annual that revels in cool, moist conditions at the root, with the vegetative part luxuriating in sunshine.

Annuals of gigantic stature are found in *Cannabis gigantea* and the various forms of *Helianthus annuus*, the first named having its attraction in the foliage. When employed together an excellent screen will quickly result, while the effect in late Summer of the big Sunflowers standing boldly out from a mass of greenery presents quite a pleasing feature in the garden.

The annuals, however, which give the greatest service in the garden are those I define as border annuals; they are strictly hardy annuals and should be sown where they will flower, March being one of the best months to begin. I have made two groups; the first, embracing the tallest sorts, includes *Calliopsis*, *Centaurea*, *Clarkia*, *Delphinium* (Larkspur), *Godetia*, *Helianthus*, *Lacatera* and *Papaver*. The second group, being dwarfer, will require placing in front of those previous named, and embraces *Asperula*, *Bartonia*, *Calendula*, *Calliopsis*, *Godetia* (dwarf sorts), *Gypsophila elegans*, *Iberis umbellata*, *Linaria reticulata*, *Malcomia* (Virginian Stock), *Nigella*, *Phacelia*, *Reseda* and *Viscaria*.

Whether annuals are sown in straight rows or clumps of irregular shape is immaterial, as with a little foresight, even when sown in straight rows in the first instance, it is tolerably easy to give the groups a broken or intergrouping effect, although, of course, the clump method is much more practical when this end is in view. The great point leading to success lies in thinning out the plants early and systematically; that is, in two or three operations; ultimately the plants should stand as far apart as half their average height. Then, as soon as the final thinning is complete, insert a few dwarf, bushy boughs among the plants, so that when in flower no evidence of this support may be seen.

With regard to the soil for annuals, this should be deeply dug and moderately enriched with farmyard manure to which a dressing of slaked lime should be given in advance of sowing. Ground freshly turned just previous to sowing, is best dressed with steamed bone flour instead of lime, this being lightly pricked into the surface with a fork, using it at the rate of 1½ pound per rod (21 sq. rods).

MULCHING NEWLY PLANTED FRUIT TREES

SO much depends upon the start that a young fruit tree makes the first year of planting that every care should be taken to secure its growth. In clumps or borders, Summer newly planted

trees get enough, and oftentimes more than enough, of moisture at the roots, but seasons are uncertain, and sometimes we get a hot, dry Summer. Trees planted in the Autumn, and which before Winter set in have got good hold of the soil, are not so likely to suffer, but where planting was deferred until Spring some means should be taken to protect the roots. With all the care that may be bestowed upon them in the way of watering, progress will never be so good and the trees will never exhibit that thrifty vigor as when the soil around the roots is preserved in a more or less uniformly moist state. By the middle of March a good coat of litter, some 4 inches thick, should be applied, for the drying winds of early Spring are apt to unduly parch the soil before watering is thought of. Watering, indeed, in the case of newly planted trees must be considered as a necessary evil, to be avoided if possible, for if the roots can be kept cool and moist without drenching them with cold water, so much the better for the trees, the health of which in a great measure depends upon the soil in which they are planted remaining at a more or less even temperature.

With a good mulch of long manure, or some such non-conducting material, there will be but little need to water until the Summer arrives, and then an occasional soaking, if the weather should prove exceptionally dry, will ensure to the roots the necessary amount of moisture, any deficiency of which during the first year of growth will exercise a most prejudicial effect upon the future welfare of the tree. In Normandy and in other parts of the Continent, where all that relates to the apple is regarded as of the highest interest, mulching is considered one of the most important operations connected with the planting of fruit trees. Few planters there would consider that they had carried out the work in a thorough and workmanlike manner did they omit covering the soil over the roots with a thick layer of non-conducting material. Mulching not only acts beneficially in preserving the tree against the effects of the sun's scorching rays, but it lessens labor to a considerable extent, and where the trees are set upon slightly raised mounds it must be regarded as an absolute necessity. Drought is by no means the only enemy that fresh-planted trees have to contend with, as hard frost and continued easterly winds, drying out the soil and arresting the flow of sap, exercise an equally inimical effect upon their health. In many cases where new plantations have failed to do well the cause might be traced to the effects of a hard Winter. When a severe Winter is succeeded by a harsh, dry, early Spring, newly planted trees are apt to get their vitality so lowered that no amount of care afterwards will restore the lost vital energy.—*Gardening Illustrated*.

THE PRINCIPLES OF VEGETABLE GARDENING, by L. H. Bailey; eighteenth edition; re-made and re-set. The Macmillan Company, New York.

A few sentences from the concluding paragraph deepen and impress the almost tender feelings with which has been examined this work of a man great in many fields of horticulture and yet careful, accurate, thoughtful and thorough in what might be regarded by some as a rather humble field for his genius.

"Here ends the vegetable-gardening book. As it begins with plants, so it ends with the home; thereby is the personal and human interest of the book emphasized. The author enjoyed writing the book twenty years ago. Still more has he enjoyed re-writing it in his maturer years, and he has lived the subject all over again. He has had many aids not available then, for now there are numerous workers. . . . He has tried to make it sound, but can not hope to have escaped errors: the reader must exercise his own judgment in the use of statements and advice. The author does not expect to re-write the book again; and if subsequent editions are needed, certain changes may be made."

It would be bold to attempt a criticism in any way; the two slight misprints discovered are not worth mentioning. Space would better be given, and can well be given, to the author's own outline of the plan of the book.

"After the introductory chapter, defining the subject-field, the different vegetables are taken up in groups. They are discussed in groups so that related crops may be considered together, avoiding considerable repetition of advice and contributing to a clearer understanding of the subject. . . . The main principles or considerations are printed in italic type at the beginning. Then follows in small type the information that should be available for ready reference, as distances at which plants are to stand, quantity

of seed or number of plants to the acre, time of sowing or planting, yields, together with very brief statements of the most important diseases and insects. The condensed paragraphs on the maladies and pests are prepared especially for this edition of the book, all on a uniform pattern.

The treatment just outlined, occupies about two-thirds of this compactly and neatly made volume of nearly 500 pages; the last third is given up to an exceedingly valuable and up-to-date presentation of Glass, the Land and Its Treatment, Vegetable-gardening Tools and Implements; Seeds and Seedage, Other Management of the Vegetable-Garden, Marketing, Storing, Drying and the Home Garden.

NUT GROWING, by Robert T. Morris, M. D. The Macmillan Company, New York.

Several considerations make this well-written volume one of the most valuable works that have appeared in the field of horticulture in a long time. As it points out, nut trees of many kinds can supply all the protein, oils and vitamins belonging to the meat group of foods. But it is questionable if the author is warranted in declaring, as he does, that "were wheat, corn, and rice and other grains to be suddenly stricken from the earth, man might live better than ever before," for nuts are a very concentrated food, not absorbed by weak digestions and always best eaten with a bulkier food made from grains or vegetables, salted crackers being one of the superior concomitants. Hence the doctor's remarks concerning the part that nuts should play in allaying the fears of those who believe that the world is in danger of becoming over-populated are themselves to be "taken with a grain of salt." Yet his discussion of the Malthusian doctrine and of various checks to over-population is interesting and embraces reflections that economists would do well to ponder over more than they do.

That it is true that much land now waste could be made very productive is suggested by Doctor Morris' affirming that in the state of his residence, Connecticut, nearly half the land is not tilled and yet ought to bear nuts of more value than the food grown upon the land now tilled, while over the country generally much swampy land, some of which is drained at great expense, could be made to yield edible nuts from various water plants. The market value of nuts already grown commercially in this country has mounted to enormous figures. Of the over \$57,000,000 paid for importations, a large part could be kept in this country, while it is true also that as nuts become more appreciated, the kinds that cannot be grown in this country will undoubtedly be brought in in larger quantities. Nuts are being more and more appreciated and more trees are annually being planted even to serve partly as shade or ornament; for one thing, because they root so deeply, they permit the planting of undergrowth in landscape adornment as do not the shade and ornamental trees that are planted commonly. One particular tree, the Lancaster Heart Nut, introduced by J. F. Jones, of Lancaster, Pennsylvania, of robust growth, has "very large, almost tropical-looking foliage and quickly makes a striking and very beautiful specimen on the lawn or in the home grounds."

To meet the rapidly increasing demand many nurserymen have been supplying seedling trees, against which the book advises that they are greatly inferior to those propagated by grafts from trees of known excellence. For grafting is advocated a new method. It consists in covering the entire scion, as well as the wound in the stock, with melted paraffine, hardened slightly, if need be, with stearic acid. The theory is that while black or brown or amber wax halts the actinic rays of light, which promote the activity of bud chlorophyll, the paraffine allows the actinic rays to act upon the chlorophyll in the bud and in the bark of the scion and does not attract the destructive heat rays; it thus further, by covering the scion completely and shutting out the air, maintains sap tension equally throughout the fluctuations of negative and positive pressure caused by changes in light and temperature, prevents evaporation of the scion and prevents suberization; that is, the natural spread of a corky layer over the wound surface between the stock and the scion, and which forms a mechanical obstacle to union. This new method permits of *immediate* grafting,—the cutting of a scion directly from one tree and placing it at once upon another tree at almost any time during the Summer. But one of the most successful nut tree propagators regards Summer grafting as commercially impracticable and declares that one usually cannot get growth, and if one does get growth it does not mature. He still prefers also to use a heavy black wax, which trial has convinced him equals the paraffine, and even secures a covering that is better and takes half the time to apply. His men do better jobs with the dark wax, for when they use paraffine they cannot easily see when all the cuts are covered. The wax, furthermore, stays on from one year to the next, regardless of the weather.

A more questionable point in the book is the advocacy of severe pruning of the roots in transplanting. The grower just referred to strongly recommends, after extensive experimentation, that while the tops should be cut back almost mercilessly, the root system should be kept as nearly entire as possible.

One important matter omitted is a discussion of the handling of the nuts when they are gathered, for the quality is greatly improved by proper curing. All nuts should have the husks removed as soon as they are gathered and they should then be promptly dried out, for the tannin in the husks darkens the pellicle of the kernel and affects its taste.

Attention might have been called to the fact, also, that in cold climates nut trees often fail, not because of their not being hardy, but because of an aphid feeding upon the leaves, from which it passes to the twigs. The twigs then become pithy and are easily killed back in Winter. The Persian, or so-called English walnut, notably suffers in this way, while certain strains of it kept in health are hardy even as far north as southeastern Canada, not, however, in Minnesota, northern Iowa, Dakota and Wisconsin. But the book contains a complete and satisfactory treatment of the different kinds of nuts and directs in the obtaining of detailed information, also. It concludes with twenty-nine carefully executed drawings illustrating the processes of grafting.—F. B. M.

TRULY RURAL, by Richardson Wright. Houghton Mifflin Company, Boston.

The publishers' own commendation of this entertaining little book is perfectly just: "A man and his wife (a most charming man, with a delightful wife) buy an old country house and undertake its rejuvenation. There are chapters about the fine art of breakfasting and rearranging of closets, lovely interior vistas of an old colonial stairway or a perfect dining-room, or outside orchards and radiant gardens. There are many suggestions in this little book which will be of value for all who love houses and gardens, and much valuable information. And all readers, with a grain of the proud householder in their blood, will ache at least to rearrange their furniture or go out in the garden and dig."

The qualities that make Mr. Wright, who, by the way, is the editor of *House and Garden*, a "charming man," are those that have made so perennially charming the old Roman Horace,—genial and philosophic contentment and a vein of playful sarcasm that helps people, in spite of their shamming, whether voluntarily assumed or forced upon them, to find the verities of life. His chapter on Annuals, racy and yet properly appreciative, blandly declares that "American landscaping suffers at present from a serious attack of Naturalizitis. Wild gardening and massed shrubbery and tree-moving are its present-day passions. Its ideal is to hedge in the view and make one thing blend into another. Because of this the herbaceous border has lost some of its professional popularity and the annual garden is looked upon as the vagary of an unknowing mind." Some people, he declares, "make a garden because it is the fashionable thing to do; other people take gardening the way they would take a narcotic (the way some men take work)—to make themselves forget the bitter realities of life—still others make gardens because it is part of a full life." These last are the successful gardeners, the born gardeners, whom the author sympathetically analyses.—F. B. M.

THE APPLE TREE, by Liberty Hyde Bailey. The Macmillan Company, New York.

It is to be hoped that the booklets to follow in the series introduced by this one will succeed as well as does this in the aim of being *genial*. But it has other merits besides that of being perfectly adapted to promote a friendly feeling toward the apple tree. That it has a mission along this line is evident from the fact that in this country, despite all the urging to plant trees, the number of trees bearing this most healthful fruit has decreased, within the past ten years, in seven of the leading apple-growing states, from 65,200,000 to only 37,100,000.

The little book is delightful reading. It comes near being an idyl; in parts it is actually poetical, and in one place, extolling the fruit, it is almost lyrical. It is scholarly,—no work bearing the name of Professor Bailey could be otherwise. It skillfully contrives to impart, along with interesting history, narrative and delightful description, all within its small compass, fairly complete instructions for planting and caring for the trees also. The chapter devoted to The Dwarf Apple-Tree, though brief, is particularly commendable for its telling so plainly the truth about a subject too little understood by perhaps the majority of gardeners and owners of homes. How many, for example, know that the apple, more than any other fruit tree, roots from the scion if this is in contact with the earth and that for this reason the dwarf apple tree must not be set with the union beneath the surface of the ground?

It is not intended to be a handbook for the commercial grower. In accomplishing the purpose for which it is intended it seems to come a trifle short only in the list of varieties recommended for different parts of the country. This list is far from being up to date, as Professor Bailey himself remarks.—F. B. M.

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Nassau County, L. I.: John T. Everett, Glen Cove, chairman; John McCulloch, Oyster Bay, L. I., secretary.
Boston, Mass.: Robert Cameron, chairman.

SUSTAINING MEMBERS

William Boyce Thompson, Yonkers, N. Y. (Andrew Strachan, gardener), and Henry Penn, Boston, Mass., have become sustaining members of the association.

NEW MEMBERS

The following new members have recently been added to the membership of the association: John E. Connolly, Mt. Kisco, N. Y.; James Kelly, Glen Cove, L. I.; Ralph W. Caverly, West Somerville, Mass.; James Scott, Manchester, Mass.; Charles W. Philpott, Newport, R. I.; James Mulholland, New York, N. Y.

AMONG THE GARDENERS

John G. Walker recently resigned his position as superintendent of the Spencer Penrose estate, Broadmoor, Colorado Springs, Colo., accepted the position of superintendent on the estate of Mrs. Alexander Laughlin, Jr., Sewickley, Pa.

George J. Oller secured the position of gardener to Hamilton Kean, Elberon, N. J.

Peter Morrison accepted the position of gardener to Mrs. Ottley, Glen Cove, L. I.

Jack Baxter, who recently resigned his position as superintendent of Glen Echo Country Club, Normandy, Mo., has accepted the position of greenskeeper of the Dixmore Country Club, Homewood, Ill.

John G. Walker accepted the position of manager of the estate of Spencer Kellogg, Derby, N. Y.

1922 CONVENTION COMMITTEES

Plans are now under way for the 1922 convention to be held in Boston, September 12 to 15, and President Cameron has named the following committees:

Banquet and Entertainment Committee: Andrew Rogers, Chairman, James Methven, William Downs, Stewart A. Forbes, Henry Stewart, A. P. Dewar, L. B. Whyte, Gordon P. Stewart, John G. Duguid, William Till, Percival C. Veinot, James Donald.

Program Committee: Patrick W. Burke, Chairman, W. D. Nicholson, John Morris, W. D. Coutts, Thomas H. Westwood, Peter Arnott, Donald McKenzie.

Ladies' Reception Committee: Mrs. Hammond B. Tracy, Chairman, Mrs. W. N. Craig, Mrs. Wm. Anderson, Mrs. George Stewart, Mrs. Duncan Finlayson, Mrs. Andrew Rogers.

Finance Committee: William Kennedy, Chairman, Frank Murray, Peter Miller, Wm. Anderson, George F. Stewart, Eric Witterlow, Herbert W. Clarke, Wm. R. Thornhill, John L. Russell.

Transportation Committee: Walter H. Golby, Chairman, Julius Heurlin, Duncan Finlayson, Alfred E. Parsons, Wm. C. Rust, James Marlborough, B. Hammond Tracy, James Wheeler.

Publicity Committee: William N. Craig, Chairman, Gustave Thommen, E. J. Farrington.

William N. Craig is General Chairman of all local convention committees.

ON TRAINING YOUNG MEN

Considerable publicity has been given to the movement of training young men for the profession of gardening by a proposed course to be established at the Massachusetts Agricultural College through cooperation of the college authorities and the National Association of Gardeners.

On April 18 before the members of the Florists' and Gardeners' Club of Boston, Prof. Thayer of the Massachusetts Agricultural College stated that the college is hopeful of starting a special two-year course for training gardeners, next Fall, the plan to provide for six months of school work after which the boys will be sent to private places for practical experience to be followed by a final year's study at the college, when they will be sent out for a year's apprenticeship under the national association. Keen interest was aroused in Prof. Thayer's statement which led to a splendid editorial on "College Trained Gardeners" in the April 25 issue of Horticulture, which condensed, is as follows:

For many years both the trade and private gardeners contended that the only way to become a skilled florist or gardener was to start at the bottom and work up. It is now being realized that a boy who has the theory of horticulture on which to lay his practical work can advance more quickly and make himself more capable and in the end become a more capable gardener or florist, than the boy who has not had these advantages. It has also been contended that college boys think so highly of themselves that they are not willing to take a humble position upon graduation. At a recent horticultural meeting at Boston, W. N. Craig said that he had employed several boys from colleges and had found them ready to do any work required of them, manifesting eagerness to learn all they could about the operation of a private estate.

Prof. Thayer said that college work was expected to be only preparatory and that practical experience is necessary to fit a graduate for an advanced position, and that the students realized this fact and accepted it. As the country lacks the apprenticeship system which prevails across the water and which keeps a new supply of gardeners coming on every year, the course at the college and the practical training under the supervision of the National Association of Gardeners will step into the breach and remedy this difficulty. The association is largely held responsible for this movement.

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LOCAL SOCIETIES

THE CLEVELAND HORT. SOCIETY

The regular monthly meeting was held April 9, with Mr. Brydon in the chair. The usual business was transacted, three new members being elected.

The exhibits of the evening were exceptionally fine, Mr. Francis being awarded a certificate of merit on eight vases of sweet peas which he had grown for W. A. Burpee & Co. The colors ranged in white, pinks, and lavenders, with stems on an average of twenty inches, carrying three and four large and beautiful flowers, far superior to the old Winter flowering varieties. The varieties exhibited were Early Lemon Beauty, Early Fire King, Mrs. Kerr, Early Pink Beauty, Early Loveliness, Early Fairy Queen, Early Exquisite, Early Rosebud, Early Bluejacket, and Early Daintiness.

Mr. Francis explained his manner of cultivation to the members, informing them the beds were dug about eighteen inches deep and mixed with well-rotted manure and bone meal. The plants were thinned to six inches apart and run to single stems, all lateral growths being pinched out. The seed was sown in October, 1921, and grown cool.

Mr. Broadfield exhibited *Antirrhinum*, White Giant, and was awarded a certificate of merit. He explained that the antirrhinums run six-foot stems, with about eighteen-inch spikes. They were grown very cool, with plenty of air and little feeding in the usual depth of benches. The clarkias, exhibited by Mr. Broadfield and receiving honorable mention, cut four-foot stems. They were grown cool in six-inch pots.

A. D. Taylor, landscape architect, gave a very interesting talk on the problems of

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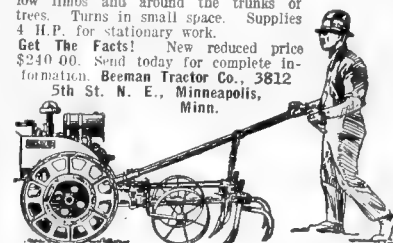
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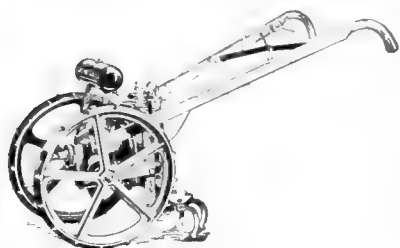
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the landscape gardener. His talk, which was enjoyed by all, brought a closer insight into the problems and difficulties of that branch of the gardening profession.

W. J. BRUCE, Sec'y.

THE NORTH SHORE, ILL., HORT. SOCIETY

The regular monthly meeting of the above society was held on April 10 at Anderson Hall, and was well attended. President J. R. Clark occupied the chair. There was a lively discussion of the chrysanthemum schedule for 1922. Chairman F. R. Kuehne, of the entertainment committee, made a final report of the recent smoker and a vote of thanks was extended to Mr. Kuehne for his efforts to make the entertainment a success. A splendid exhibit of cut flowers and pot plants was shown.

R. E. KUEHNE, Cor. Sec'y.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The April meeting of the above society was held at the American Legion Hall, Port Chester, N. Y., on April 11. The Flower Show Committee reported progress and the monthly exhibits were fine. Awards were as follows: W. J. Sealey, first, for vase of roses; William Smith, second, for a vase of carnations, a good sport from the well-known Laddie; Alex. Grieg, third, for vase of lupines. Other exhibits were H. F. Bulpitt, colored freesias; Alex. Smith, lupines; George Sweet, Hyacinthids and yellow.

John H. Troy, of New Rochelle, received a prize for a vase of hydrangeas.

Mr. Troy gave the members an interesting talk on the trees, flowers, and ferns which he saw on his recent visit to Australia and New Zealand. His talk was very much appreciated by the members and he was given a hearty rising vote of thanks.

HARRY JONES, Cor. Sec'y.



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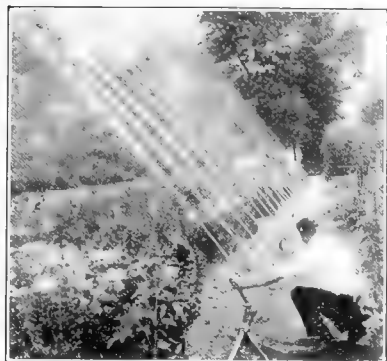
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Before me, a notary public in and for the State and county aforesaid, personally appeared D. Ebel, who, having been duly sworn according to law, deposes and says that he is the business manager of the "Gardeners' Chronicle of America" and that the following is to the best of his knowledge and belief a true statement of the ownership, management (and, if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, managing editor, and business manager are: Publisher, The Chronicle Press, Inc., 286 Fifth Ave., New York, N. Y. Editor, M. C. Ebel, 286 Fifth Ave., New York. Managing Editor, M. C. Ebel, 286 Fifth Ave., New York. Business Manager, D. Ebel, 286 Fifth Ave., New York.

2. That the owners are (give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent. or more of the total amount of stock.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.) There are no bondholders, mortgagees or other security holders.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the owners,



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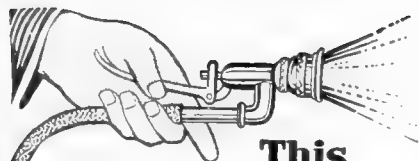
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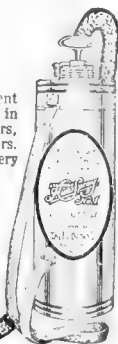
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Vol. XXVI

JUNE, 1922

No. 6

Things and Thoughts of the Garden

MONTAGUE FREE

THE appearance of a fine show of bloom on *Clerodendron Thompsonæ* (*C. Balfouri*) at this time (May) is a reminder of what a splendid greenhouse climber we have in this species. In spite of the fact that greenhouse climbers in general seem to have fallen upon evil days and are less in public favor than formerly, the Glory Vine, giving it its English appellation, is still fairly commonly grown. Those who are unfamiliar with it may perhaps obtain some idea of its beauty from the following description: It is a strong growing shrub, climbing by means of slightly twining stems, with rich dark green foliage which provides a pleasing foil for its flowers. These are produced in loose cymes from the tips of short lateral branches. The calyx which persists for a considerable time after the corolla has fallen, is creamy white in color, strongly five-angled and in general outline pear shaped. From its narrow end the brightly colored corolla emerges with its three upper petals reflexed. The protruding stamens and pistil serve to still further enhance the distinctive character of the inflorescence. The color of the corolla is described in Bailey's "Cyclopedia" as light crimson, which is probably accurate enough for all practical purposes. An attempt to match its color in Ridgway met with partial failure and the nearest approach found to it in that valuable book was "carmine." The true color appears to be between "carmine" and "spectrum red."

One satisfactory feature of this *Clerodendron* is its good temper under cultivation—it may be greatly neglected but it still continues to produce its crops of bloom from May onwards throughout the Summer, year after year. If abundant flowers are desired, it is good to allow it to become somewhat pot bound once the desired size is attained, as this tends to curb its rampant vegetative growth and promotes the formation of the short laterals on which the flowers are produced. It is not especially ornamental when trained along the greenhouse rafters as the inflorescences are erect and almost invisible to anyone standing below because of the dense mat of foliage. It is seen to best advantage when grown in a pot or tub and trained upon a wire frame or a supporting pillar. It is native to W. Africa, but thrives even if subjected to a minimum Winter temperature of 50 to 55 degrees, when it is more or less dormant.

Another indoor *Clerodendron* that is quite showy is *C. fallax*. This is a shrub that produces its terminal cymes of scarlet flowers throughout the Summer. Like the preceding it is noteworthy because of the lengthy

period that it remains in bloom. Although a shrubby plant it is perhaps best treated as an annual, as it appears to better advantage, with a larger inflorescence, when grown to a single stem. Old plants that have been cut back tend towards irregular branching and an ungainly shape. This species is indigenous to Java and does best in a warm house. Incidentally the genus has a fairly wide geographic distribution as representatives are found in Africa, Australia, East Indies, India and Japan.

There is at least one member of the genus that is comparatively hardy, namely, *C. trichotomum* from Japan. This is an extremely attractive shrub and valuable in its late blooming habit. It forms a bush with a rounded head and is conspicuous when covered with white flowers backed by the reddish brown calyces. It remains in bloom for a long time and, after the flowers have fallen, the bright, dark blue fruits seen against the persistent red calyces provide another attractive display. The fact that the leaves are held until well into the Fall is another recommendation for this little known shrub.

With regard to hardiness, here in the Brooklyn Botanic Garden it comes through most Winters unscathed. Last Winter, for example, the tips of the branches were killed back from three to six inches, which is only to be expected when growth is maintained until late into the Fall. In very severe Winters it may be killed back to the ground, but this does not necessarily mean the loss of a crop of flowers, as these are produced on growth of the current season.

* *

Mention of *Clerodendron Thompsonæ* as a greenhouse climber calls to mind other plants, suitable for this purpose, some of which are all too seldom seen.

The Calico Flower, *Aristolochia elegans*, from Brazil, is extremely decorative and interesting, and is most valuable when a not too rampant climber is desired. Although its flowers are not so spectacular as those of *A. gigas*, for example, they are quite showy, and, as another redeeming feature are devoid of the intolerable stench that makes those of *A. gigas* and many others of the genus so objectionable in a closed greenhouse. It is a free bloomer and the flowers, pendent in slender pedicels are about three inches in diameter. The ground color is white, with curious purple markings, and a velvety blotch of rich purple at the throat.

Another interesting stove climber is the *Granadilla*—one of the Passion Flowers—*Passiflora quadrangularis*. The Cambridge (England) Botanic Garden is the only

establishment where we have seen it growing vigorously, and blossoming and fruiting freely. There it was planted out in the "stove" and its long strong shoots were trained along the roof. In the Summer when its fruits ripened there were many delectable feasts in the potting shed, at which the juicy pulp of the *Granadilla* was the *pièce de résistance*. These fruits are quite sizable, 5 to 6 inches long, greenish yellow when ripe and present an attractive appearance when hanging on the vine. The flowers, 3-5 inches across, are sweet smelling and amongst the most showy in the genus. The prominent part is the five-fold corona of white filaments variegated with violet, which is backed by the petals, white without and red within. This species comes from Nicaragua, and enjoys a warm Summer temperature.

The "Purple Wreath" *Petrea volubilis*, which grows wild from Cuba to Brazil, when seen at its best, is one of the most striking of our ornamental climbers. The flowers are produced in long racemes and the color scheme is one of lavender and violet. The five-lobed calyx is lavender in color and persists after the violet corolla, which is much smaller than the calyx, has fallen. The plant grows vigorously with us here but is rather shy so far as blooming is concerned. Possibly a little starvation, or perhaps Summer pruning when growth is rampant, will help matters in this respect.

* * *

The Scotch Broom, *Cytisus scoparius*, was very satisfactory with us here this year and a large bush smothered in yellow flowers tinged with orange was one of the prominent features in the rock garden. According to Gray's "Manual" it has become naturalized from Nova Scotia; S. E. Mass. to Virginia, and southward. It seems somewhat surprising that it should have become established so far North when its behavior in Brooklyn is considered, for here it is not infrequently killed by the Winter. To the best of our recollection last year was the first time in eight years that it bloomed at all adequately. It often happens that although the plants may not be entirely destroyed, their branches are killed to the ground, and, as the flowers are produced on wood of the preceding season, it proves a disappointment to those expecting a great May display.

Its lack of hardiness in some gardens may possibly be due to its being planted in soil that is too good for it. The Broom grows naturally on barren sandy soil and when introduced to the rich soil of gardens is inclined to make sappy growth quite unsuited to withstand our rigorous Winter climate. Another possible explanation is that the plants that so readily winter-kill originated from stock obtained from the warmer parts of its range. It seems reasonable to suppose that plants raised from seeds obtained from, for example, a station in the mountains of Scotland, would have a better chance to succeed in our climate than those obtained from Southern France.

Apparently at one time the Broom was of considerable economic importance being used in medicine; as forage (mainly for sheep); as a condiment, the flower buds being pickled and used in the same way as capers; for thatching, for making brooms and divers other purposes.

There are several garden forms of *Cytisus scoparius*, which are reputed to be less hardy than the species. One of the best of these is *C. scoparius* var. *Andreanus* which has flowers of yellow and crimson.

* * *

The *Laburnum*, too, this year delighted us with a display of its long, yellow racemes. This of course is a sort of cousin to the Broom and in Europe is sometimes used as a stock on which to graft varieties of *Cytisus scoparius* when standards are desired.

One would do well to hesitate before using flower buds of the *Laburnum* as a substitute for capers, as is done with the Broom, for it is quite poisonous and, in England, the demise of the children from eating the seeds is occasionally reported in the newspapers. Apart from this bad trait it is a glorious tree for garden purposes in sections where it thrives. We remember a fine specimen in the garden of Childerley Hall in Cambridgeshire, England, that appeared as though it might be a grandmother (or grandfather) of all *Laburnums* so gnarled and ancient did it appear. Although so aged, it had not lost its powers of blossoming as a photograph taken a year or two ago showing it laden with bloom, testified.

In our climate the young branches are sometimes Winter killed, and, as it is from these that the flowers are produced, an annual crop of bloom cannot always be relied upon.

Laburnum alpinum is reputed to be the hardiest of the genus and our gardens would be greatly enriched if someone would take this species in hand and develop a strain capable of withstanding our Winters unscathed. There is ample room for a tree with yellow flowers, blooming in May.

* * *

Here is another quotation from W. H. Hudson's "A Shepherd's Life."

"But let us look at the true cottages. There are, I imagine, few places in England where the humble homes of the people have so great a charm. Undoubtedly they are darker inside, and not so convenient to live in as the modern box-shaped, red-brick, slate-roofed cottages which have spread a wave of ugliness over the country—but they do not offend—they please the eye. They are smaller than the modern-built habitations. They are weathered and colored by sun and wind and rain and many lowly vegetable forms to a harmony with Nature. They appear related to the trees amid which they stand, to the river and meadows, to the sloping downs at the side, and to the sky and clouds over all. And, most delightful feature, they stand among, and are wrapped in, flowers as in a garment—rose and vine and creeper and clematis. They are mostly thatched, but some have tiled roofs, their deep, dark red clouded and stained with lichen and moss; and these roofs, too, have their flowers in Summer.

"But its garden flowers, clustering and nestling round it, amid which its feet are set—they are to me the best of all flowers. These are the flowers we know and remember forever. The old, homely, cottage-garden blooms, so old that they have entered the soul. The big house garden, or gardener's garden, with everything growing in it, I hate; but these I love—fragrant gilly-flower and pink and clove-smelling carnation; wallflower, abundant periwinkle, sweet-william, larkspur, love-in-a-mist, and love-lies-bleeding, old-woman's-nightcap, and kiss-me-John-at-the-garden-gate, sometimes called pansy. And best of all and in greatest profusion, that flower of flowers, the marigold."

Gardeners can appreciate the beauty of Hudson's description of the humble English cottages and their gardens, and enthusiastically sympathize with his love for the old cottage-garden blooms, but most of us will simply fail to understand how he can hate the "gardener's garden" with everything growing in it. The objection of a Nature lover to the prim formality to be found in some gardens, his scorn for some of the highly developed monstrosities that are cataloged as "improved" varieties can be understood, but not such wholesale condemnation of everything that grows in the gardener's garden.

Fall Bulbs

GEORGE H. PENSON

NOW that the Spring rush is over and the majority of planting done, the exception possibly being some successions of vegetables, our thoughts are ahead, as ever they must be to the requirements of next Fall, Winter and the Spring of 1923. One of the main things to be thought of on many places are bulbs for Fall planting and also for forcing in the green house during the early Spring months, which will herald once again the approach of another Spring. The many varied forms and colors of forced bulbs are ever suggestive of youth and Springtime even though the weather on the outside may be part of a dreary Winter or a boisterous windy or stormy day of March. The Paper White *Narcissi* and Roman Hyacinths will be the first to show us Spring flowers, even though Christmas is only days past. These will be followed by narcissi of many varieties, hyacinths, tulips, crocuses, and later, probably one of the last, irises,

sults, but do not forget a poor bulb cannot produce a good flower no matter what the soil and conditions are. Where the beds have been planted all Summer to other flowering subjects it is advisable to spade under well rotted farm yard manure when preparing for bulbs. This should be decayed so that it will easily pulverize and readily mix with the soil. With plenty of available plant food we often see good flowers produced on lighter soils, but, as nearly all bulbs like an abundance of moisture a heavier soil is more conducive to this end.

Planting.—When planting fruit trees and other like subjects we study the depth of the roots in relation to the air and food to be applied at the needed season. This does not enter into the growing of bulbs to any great extent but the depth of planting is just as important. Another thing to be borne in mind is that the bulbs we plant in the Fall have to go through the Winter and while freezing

at a good depth will not hurt them it would not be advisable to have them near the surface. I like to see from four to six inches of soil on the top of the bulbs when the bed is finished off. Darwin tulips particularly want to be planted deep. Crocuses will be an exception to this rule, one inch being sufficiently deep enough for them, especially if the soil is heavy. They have a tendency to rot if planted deep. When planting, the most satisfactory way that I know of is to make up a rough sketch of the beds at the time of ordering the bulbs; lay out on this exactly where each variety is intended to be placed and be governed by this at planting time. When the beds are ready to receive the bulbs mark them off and place each bulb exactly where it is to be planted as they are removed from the bag or box. Lay your whole bed or beds out in this way before any are planted and this will eliminate much confusion. When so placed do not attempt to change or alter them



A display during May of Darwin, Breeder, and Cottage Tulips on the estate of J. E. Aldred, Ormston, Glen Cove, L. I. (Courtesy of Stump & Walter Co.)

both Spanish and Dutch. Not only do we have to think of greenhouse requirements but on an ever increasing number of estates do we find an extensive planting of bulbs made for a gorgeous display of color from earliest Spring when the snowdrop and crocus will herald the way for others of nobler birth, with a continuation of flowery wealth until the last tulip has dropped its petals when the month of May is on the wane. These plantings may be an entire formal garden having a Dutch effect when the bulbs are in bloom or massed in the herbaceous border, the wild garden, or edging for shrubbery. The later flowering tulips are not very adaptable for the latter, the other subjects can be planted to better advantage, according to the season it is desired to have them in flower.

THE SOIL

A medium heavy soil with plenty of depth having an abundance of available plant food produces the best re-

sults in any way or the chances are you will see changes when they flower. Take each bulb and plant it where its impression is on the soil. I like to press them into the hole made with an ordinary garden trowel. When planting Spanish or Dutch iris it will be beneficial to drop an inch of sand in the bottom of the hole placing the bulb on this and covering with soil.

Where we find a Dutch garden laid out in a number of small beds forming a formal design it will often be the most effective to use one color to a bed, the exception perhaps being an outside edging. A nobler effect will be secured by having a larger block of one color than trying to get too many in a small space. And while speaking of color we have the proverbial "all colors of the rainbow" when we think of tulips and hyacinths, but narcissi are more limited. The latter are not extensively used for formal bedding. They have a more natural effect when planted in the wild garden, edging of shrubbery, or even

a portion of the lawn not seen from the mansion, a vista flanked with narcissi makes a very pretty sight. Take the old *Pecticus ornatus*, or any of the larger flowering varieties and they will add beauty during the early Spring months. The narcissi and crocuses seem to be in their natural home in these places but not so with the hyacinths. The tulips and irises are in a utility class. Should it be intended to leave bulbs so planted more than one season care must be taken to insure a finishing of the bulbs by letting them make their natural growth of foliage. This must not be removed by cutting until it shows signs of relaxing and decay, typifying a finished growth. The longer this remains intact with the bulb the better the flower will be the next season. In fact if it can be left to decay away on the bulb it is beneficial to it. When planting in formal beds, particularly tulips, due consideration must be given to the height at flowering time. All varieties listed will show the height and if followed will be of great assistance in getting the required effect. This is not so particular with other things as with the tulips, but a thirty-five inch Darwin will certainly look out of place on the edge of a herbaceous border. Placed further in the rear they will have a very pleasing effect.

THE SEASON

Snowdrops are the first of the bulbs to make their appearance and also their flowers. When a boy, I searched for the tiny tips of the snowdrop's growth amongst the melting snow in sheltered places on the edge of many evergreens. This to me was the first sign of Spring. Following the snowdrops come the crocuses with their many brilliant colors. Following these we have early flowering tulips and hyacinths, narcissi and late flowering tulips which will cover a flowering period to the end of May.

Varieties and colors.—When we look through any bulb catalog and note the different classes of tulips, early flowering, both single and double, Darwins, Cottage, Dutch Breeders with the maze of color they represent we have quite a study before us to make a selection of such varieties which are best adapted to our particular purpose. The color scheme and season of flowering will have to be the chief factors in determining what varieties to order. Hyacinths give us an abundance of color but the season is not so extended nor do we have so many classes to select from. The Roman hyacinths are not adapted to outside culture. Narcissi give us a wider range of type but not so much in color as the tulips. We have the hardy *Narcissus poeticus* in several varieties and *Narcissus poeticus* likewise in four or five varieties. These are a very distinct class as the petals are white forming the major portion of the flower, the trumpet being negligible. The jonquils are the smallest of the trumpet varieties and are only used for mass planting in the wild garden or shrubbery. The most magnificent things to be found among narcissi are the giant trumpets: Empress, Emperor, Golden Spur, and the newer King Alfred is always gorgeous. Then we have the medium trumpet class, signifying as it does that the trumpet portion of the flower is smaller than the giants. This is oftentimes made up by a variation in color of the perianth. These are now classed under three groups, viz.: *Barrii*, *Leedsii* and *Incomparabilis*, which denotes the length of crown or trumpet and color of petals. Double narcissi can be had in such varieties as Von Sion and *Albo pleno*, the latter being nicely scented. Dutch or Spanish Irises are best used for cutting purposes, planted in such positions as will allow them to be cut when needed. These compete with the *Schizanthus* for the "Poor Man's Orchid" and I think they are entitled to win out as they more closely resemble the orchid in shape

and have as much color. We often see the colors running together in an individual flower very similar to many Cattleyas. They are listed in separate colors, the predominating color, but if a mixed color is wanted for a vase or cut flowers these irises will supply it.

BULBS FOR FORCING.

All bulbs will respond to forcing. Some can only be brought into flower a few weeks ahead of the normal flowering season, but others will respond to heat and moisture and flower at any desired season. Some varieties respond much more easily than others and should be used for the earliest flowers. Paper White lead the narcissi, Roman hyacinths lead the hyacinths. Among tulips use the early singles. The old Mon Tresor will be found to stand as much pushing as any of them. Get the bulbs intended for early forcing potted up as soon as possible, using a good rich, fairly heavy soil, if same is easily obtainable or any good sweet soil. While it is not possible to put them as deep in the pot, pan or flat as can be done in the open ground they should have the bulb covered with soil. When potted plunge the pot, pan or flat, whichever is used, into six or eight inches of sand or sifted coal ashes. I believe it is better to plunge the earliest patches deeper than this as they will not feel the heat so much. The plunging or complete covering of the bulbs is to retard top growth and promote root action by keeping them cool and moist. Here is the secret of forcing bulbs: Get the root first and the top will come without any difficulty. If you try to force any kind of bulb only half-rooted the result will be very disappointing. When rooted they can be taken out of the sand and if they are not all needed some can be held in a cool house for several weeks. There is a limit to the time that they can be left in the sand, as they will try to push up when the roots reach a certain stage. They ought to be examined periodically and taken out as soon as any top growth is noted. At no time does it pay to give bulbs a great heat as they are all cool subjects. At night 55 degrees will give the best flowers. Where quality has to be sacrificed for earliness this can be increased. Romans and Paper Whites will stand more heat for a time but should be allowed time to harden up in a cooler house to stiffen the stems before they are cut. Hyacinths if subjected to excessive heat will have a very weak stem and fall over without the support of a stake. Darwin tulips and irises should be the last to be brought into flower, preceding those grown outside by a few weeks. During the whole growing season all bulbs like an abundance of water. Many are grown in special glass jars or vases by amateurs in water alone. Others are grown in bowls filled with pebbles and water, the roots working in among them. The large flowering hyacinths and narcissi are best adapted to this work. For those growing in the soil, liquid manure applied when the flowers are raising will help them along, but it is not advisable to use fertilizer of any kind. Liquid cow or sheep manure is best adapted to them. Keep a moist atmosphere around them and a good bulb will produce the best in flowers. When any one wishes to get the maximum in flowers from any bulbs the best bulbs that can be bought will be none too good. Order early which will be appreciated by the seedman and you will not be disappointed yourself.

Nothing is easier than fault-finding. No talent, no self-denial, no brains, no character, is required to set up in the grumbling business. But those who are moved by a genuine desire to do good have little time for murmuring or complaint. ROBERT WEST.

What is a Garden? Some Random Thoughts

HENRY J. ECKSTEIN

THE various books on gardening of the last decade largely concern themselves with the revolutionary trend that has so completely reversed the landscape and gardening practice of this century. From the regularity and severe rigidity that typified the entire spirit of the Victorian era, to the semi-wildness, towards which the tendency of our time so often leans, is indeed a long step. Naturally there is much controversy as to the extent that a garden shall be formal or naturalistic. What shall determine the extent to which these contrasting elements shall enter into the planning of the garden? It would seem that this would be a matter to be determined only by the individual who is trying to make a garden as an expression of himself. But before these questions are at all to be considered might it not be well to attempt to say, what, after all, is a garden?

This, too, it might be said, must of necessity be determined by each one, individually and for himself, and in expressing an opinion as to what a garden is, this is not only conceded but accepted as a premise to the answer suggested. For if we say that the garden must be the expression of the person making it are we not obviously concluding that only when a personal note enters into the garden form is there a garden at all?

Whosoever loves flowers and devotes care and time to their cultivation, placing them and growing them, in such places and ways as are at his disposal, creates thereby a garden. It matters not where the garden is, or what is its nature or form, or size. Can we feel, if we consider the spirit and not the technique of the matter, that we can use the magical word, garden, with all that it implies, of loveliness and fragrance and sentiment, unless it conveys something of the interest that causes it to be at all?

We have all passed by a simple cottage or isolated farmhouse and seen beside it a few scattered plants irregularly placed, perhaps even self-perpetuated, and felt the hand of the gardener, despite their straggly and unrelated appearance. We know that the farmer who is trying to make a living out of the land has no time for any such luxury as flowers. Usually it is the farmer's wife who attends to the few plants there are and makes for them the home they have even though she as well has but little time for them. Often their location is unsuited and their number few, their whole appearance inharmonious, but despite this, in fact often even just because of it, we somehow are impressed with the feeling that someone is making a garden.

Even in our large cities, in the most congested and barren districts, we see an occasional window-sill with one or two pitiful looking plants, or a rudely made box, in which someone is struggling to coax a little growth, in face of every adverse condition. Who will refuse to grant that these also are gardens, not because of their beauty, for often they lack it completely, but because of the love that lies behind their existence?

We also see in large cities on palatial homes or luxurious hotels sumptuously planted window boxes that show every care of the florist and much expenditure. At least to me there is no feeling of a garden there and no thought of the spirit however much they may ornament or decorate the building.

So that in every circumstance, wherever flowers are planted with feeling and cared for to the utmost extent that the surrounding conditions permit, we have the spirit, at least, of the garden. And wherever the personal note of the grower is missing, and the result, however,

elaborate and effective, is but the outcome of an order given to have so and so done, there is no true garden. From the humblest city window to the largest country estate this seems equally true.

Some years ago I visited one Summer day two gardens of note in an American resort, famed possibly above all others for the extent and glory of its gardens. One belonged to rather a simple, unpretentious place, particularly for its environment. But immediately there came that feeling of the individual direction that made its garden successful. In fact there was a series of gardens, each perfect in itself and leading one to the other in so skillful a way that one was never aware that another lay just the other side of the encircling shrubbery.

The other was a great estate with elaborate floral displays, arranged in regular, disconnected beds. Its chief gardener was proud of his display in two huge, round beds of contrasting red salvias and yellow coxcombs, which fortunately for me, were not yet in bloom. He enjoyed the opportunity of conducting us through the great greenhouses and of telling how many roses he cut and shipped each Winter. I think it was some twenty thousand. He rejoiced in describing the rarity of his orchids and the extraordinary size of his "mums." He told of his appreciation of the opportunity of showing all this, because his employer was rarely there, and even then never visited the "gardens."

I will admit that this owner and his superintendent have every technical right to the use of the word "garden," but will always feel that to any true garden-lover they maintained a great and elaborate flower factory, that efficiency supplied the large demand for cut flowers made upon it, but in no sense and at no time can we feel that all this elaboration and work made a garden.

Of course, on the other hand, we cannot urge that merely the love of flowers makes a garden and these are extreme cases cited to convey the underlying thought that the true garden spirit is felt wherever the effort is made to cultivate flowers because they are fully appreciated. But one also demands that all possible efforts and provisions are made to ensure the success of the plant and its most advantageous display. There are many who prepare regularly laid out beds or straight, perfect rows, growing in them and carefully cultivating giant cannas, perfect dahlias or even rarer flowers. These people may indeed truly cherish these; in fact they usually do, but they have failed to provide for their best effect, in their lack of taste and harmony.

A garden requires the judicious use of material and background, the employment of a sense of fitness and beauty and the true appreciation of the full value and habit of the particular specimens selected. All this should always be taken into consideration not only by the maker of the garden but by its critic as well.

Formal shrubberies, well clipped hedges and even walks or beds of flowers cannot look well in a rural or semi-wild district, surrounded by rough fields and embracing woodland. No more is a wild naturalistic effect in keeping with the suburban cottage that fronts a paved sidewalk and is flanked almost contiguously with neighboring houses. These are facts admitted by all writers on the subject. But just how far formal design can enter into an isolated country place or naturalistic tendencies can be admitted in the suburbs is always a question which the creator must determine. The secret of success or failure lies in the taste and discretion that determines the

introduction of whichever of these elements is foreign to the environment. Where design or its absence is consciously blended with surrounding conditions, and all skillfully harmonized, a garden arises.

Wherever love is there is a garden, but it must be the love that cares and provides and considers all contributing aspects. No one can build a garden in a single year. In fact age gives a tone to a garden that can not be produced by man.

And here the individuality of the gardener having expressed itself meets the competition of the individuality of the garden. Conditions of soil, drainage, situation, climate and surrounding vegetation all seriously affect the plans of the gardener and make themselves felt adversely or favorably.

When we start to plan our garden we are flushed with dreams and ideals. I was about to say "hectic," and I do not know but that is closer to the truth. We are led on and tempted by the catalogs for which nothing is difficult but all is beautiful and luxuriant. For the writers of these there is no drought and no wet spell. They never saw an aphid, or any other pest, and as to failure to bloom, well, that only happens with the stock of other nurserymen. So that our eager visions are enflamed by what we read in the catalogs. And we start to build. We conceive a picture of lovely lawns and shading trees amidst which we can sit and enjoy the lovely bloom of our new garden. We plan great masses of sumptuous, tall growing flowers, against relieving backgrounds of the fresh green of shrubbery, and fringed with delicate edgings, graceful and colorful. But when we have planned and planted we learn that the shrubs rob the soil, at the expense of the flowering plants, their roots trespass and encroach, and the larger plants crowd out and overshadow the smaller. Our plans are rent asunder, and—we start afresh.

Again we plant a variety of things, carefully chosen from the long lists, ensuing a succession of bloom, subtle contrasts of color and size, and then we find that conditions that suit some, do not suit others, our bloom is neither continuous nor well blended and we must plan again.

The garden, too, has its say, and until we have studied and reworked our schemes, until we have conquered, in one way or another, these obstacles we are not content. But the true gardener goes on, year after year, full of hope and joyful expectancy in the Spring, followed by new and greater plans in the Autumn. And between these seasons comes a period, usually about mid-Summer, of despair and trial that too often ends the effort. This period comes to all, but the real gardener survives and persists. And of course he never finishes. Nature and time, however, outlast the best gardeners, and when left alone often produce a lovely garden, perhaps not perfect in its completeness, but with an added charm of abandon and luxuriance that we can never hope to imitate. We often hear and read of the charm of old gardens, but that charm we can never produce, except if favored with a long life at garden making. But we can make the start, feeling that if we can never see the end ourselves, some one else may.

I have seen many such old gardens, neglected for decades, where no new plants have been planted for years, no weeds ever pulled, no order established. Often they have been almost entirely without bloom, at times gay with color. But always there has clung to them a quaint and desolate beauty.

In the old French quarter of New Orleans there are many such. We peer through dilapidated gateways or over half demolished walls. Behind them we see, in the courtyards, numerous children and burdened wash lines

that tell the tale of the gradual change from stately mansions to overcrowded tenements. Here is an old pavement, discarded well, abandoned garden, rank with growth, entangled with vines, and gay blossoms everywhere. The very desolation is its loveliness, the abandonment its charm.

In Charleston (S. C.) there are many such gardens, where the roses have outgrown our fondest dreams, in size and bloom, where the vines are massed with yellow or purple *Bignonia*. *Wistaria* never seems to bloom so well as in these forsaken corners. Ivy has encroached over all making a full, dull background for the brighter colors.

In Virginia, the ivy creeps from tree to tree, over the roofs of the houses, runs along the ground entwining great shrubs and flowers. Perennials seem to thrive the better, and the annuals almost seed themselves on its leaves. Amidst this overgrowth rambling walks are just traceable, by the lovely discoloration of their stone or brick.

Often these seem to be the loveliest of all gardens, even where they are just a wild tangle. The care and thought that laid them flourishes still, wafting the spirit of the forgotten builders with the fragrance.

I revisited recently a very old house in New England, a charming as well as historic landmark. I recalled the old garden that was an irregular, overgrown mass of entangling plants, and asked to see it. The new occupant proudly conducted me to a newly made garden. It was charmingly built, with lovely walks of brick, among well selected and grouped flowers and shrubs. Any other place I would have been delighted to find so excellent a garden. But despite its beauty, and choicer, greater bloom, I could not but regret the charm of the old one, that had been sacrificed to it.

It is in these old gardens that we learn to know that the garden too has its personality, that left to itself, it allows some things to grow and spread about, where others die out, and time adds its color, not of efflorescence, but of something equally beautiful, and of a more delicate sentiment. We cannot, as I have said, imitate this effect, it is a privilege Nature keeps for herself, but we can allow it some scope in our gardens, and often learn thereby.

Occasionally a plant will seed itself and thrive better than where carefully tended in greenhouse, frames, or nursery. And these self-seeded plants, arising unexpectedly amidst almost anything, or in some forgotten corner, are always a delightful surprise. Never have any foxgloves I have planted seemed so precious and lovely as some I found that had "volunteered" on the edge of the woodland.

Hollyhocks to me have always demanded a particular situation. They belong to small cottages, against its walls or fence palings. They always have seemed out of place in most formal and larger gardens. I have tried them in various places, and never been pleased with the result. Or when I have planted them in a place I thought exactly suitable, they have never grown. Still this Summer a few seedlings established themselves, fully one hundred yards from any place I had ever put them. They chose the very corner end of the border, against the vine clad arbor, with its heavy profusion of Dorothy Perkins. There they rose, six, eight, ten feet, from the midst of some phlox, alongside some *Thermopsis* that had finished blooming, and gracefully, although uninvited took their place. To me they were the loveliest bits in the garden this year, especially as they chose to come in lovely delicate shades of pink, white and yellow—and of course single varieties. Landscape architects

(Continued on page 177)

Rhododendrons and Azaleas in the Garden

FRANK B. MEYER

(Continued from May issue)

ARRANGEMENT IN THE LANDSCAPE

AT Lindenhurst conditions such as Mr. Wilson describes for the ideal have been given nearly perfect form. Running down the glens of gentle slope are paths bordered by rhododendrons and azaleas that are all along backed by dogwoods, red and crimson oaks, pines, hemlocks and cedars. At certain points taller-growing native azaleas help to shield the hybrid rhododendrons, which, all obtained directly from England from seven to twelve years ago, include several varieties not found hardy at Boston. These plants, all under eighteen inches in height, were spaced suitably for their size. As they have grown there has been thinning out from year to year. The plants removed have been used to border other aisles and to flank new vistas opened up. These vistas, all successful, as must be admitted by all whose good fortune it has been to inspect them, are delightful at all seasons of the year; but they are most charming when the rich coloration of the azaleas and rhododendrons, with here and there a cloud of white involucre of the dogwood and large flecks of the pink, are seen against the foil of verdure held up by the lusty pines and oaks. And even before Nature lifts the curtain to reveal this lovely maze of color in such masses some of the sloping paths invite one with their edges brightened by stately Cottage, Darwin and Breeder tulips whose rich shades are given increased luster by their standing against the dark gloss of the broad-leaved evergreen shrubs.

Spots of relief in the midst of the banks and masses of the rhododendrons have been formed by placing into natural pockets or nests Catesby's *Leucothoe*, whose graceful racemes, so fragrant, are followed by a rich bronzing of leaf in the Autumn. The mountain laurel also, admittedly the most valuable broad-leaved evergreen native of America, and *Andromeda* or *Pieris floribunda* are employed, perhaps not quite so much as they deserve. The *Andromeda* presents the one objection of looking bad when going out of flower.

During the Summer the masses of green are enlivened by the blossoms of lilies, many of them native, dotted among the rhododendrons wherever there is even the tiniest clearing through which they may lift their belts.

In the large rock garden can be seen how well suited to such surroundings are some of the dwarf rhododendrons and many of the azaleas. These all appear well at the water's edge also, the brilliant *Hinodegiri* as well as any, in groups or in clumps. They make lovely pictures in combination with plants like the bamboo and the tamarisks.

THE METHOD OF MANAGEMENT

The method by which all this has been achieved is worthy of emulation. Since the rhododendrons were bought at the small initial cost none have been purchased for the enlargement of the plantings. They have now increased to a value of over \$100,000, many times the original cost. The dogwoods, more than one thousand in number, were obtained for little more than the cost of hauling them. Today Lindenhurst has acres of the finest naturalistic growth as the result of proper planting, handling and judicious thinning. At no other place in the country, perhaps, can there be found so successful a development.

But there are other magnificent collections of rhododendrons and azaleas. At the Widener estate, not far away, the broad-leaved evergreens are used to help out, in splendid style, the massive formal design. Here are some of the best specimens of *Rhododendron ponticum* in the country. At the Neubold estate, also, not far away from Lindenhurst, excellent plants of *R. maximum* can be seen. The largest plants, however, are probably those in Clifford Park, off Wissahickon Drive, recently made a part of the Philadelphia Park system. Here are specimens of the *Kalmia* also fifteen feet tall, very shapely and profuse in bloom.

An attempt to use among rhododendrons ground cover plants may be inadvisable in situations at all exposed and needing pretty heavy mulching. It may be interjected that in general it is not good practice to attempt to use around roses or other plants requiring careful cultivation any ground cover or filler that, in addition to hampering cultivation, may conduce to the breeding of insects or fungous growths.

The flowering is made much more profuse by picking off, in the Summer, all old blossoms and seed pods.

THE WINTER PROTECTION

Concerning the protection of rhododendrons in Winter nearly enough has been said or implied already. A point to be emphasized it that, as with all evergreen plants, the functioning of the roots must continue, at least to a considerable degree, during the Winter. In the case of rhododendrons, because their roots remain so near the surface, it is necessary to keep the ground from becoming dry for a period long enough to exhaust the life juices. Shading helps of course to retard transpiration and evaporation. Another object of shading is to prevent the rays of the sun from penetrating beneath the coating of moisture under which the "converted" heat will become imprisoned, or from burning the surface of the leaf by shining through the globules of water or ice that act as burning glasses. In the case of deciduous azaleas protection against the sun is, of course, unnecessary. On Long Island, upon the magnificent estate of W. R. Coe, the writer has been greatly pleased to find this Spring that *R. schlippenbachii*, with its exquisitely beautiful flesh-pink blooms, and several of the *Kurume* azaleas have wintered out-of-doors perfectly with very simple protection. Leaves and long grass were merely piled around the shrubs high enough to cover them. In this way it has been found feasible to protect sufficiently even such treasures as two plants of *R. schlippenbachii* nearly three feet tall; and they were most delightful to look upon. Herein is encouragement great indeed and the promise of beauty in gardens quite ravishing.

DISEASES

The diseases of the rhododendron are not many nor are they hard to combat. "On the leaves and even sometimes on the small branches, can often be seen swellings on which a kind of gall forms. These galls are caused by a fungus, called *Exobasidium Rhododendri*, which lives in the attacked part of the plant and causes it to swell considerably. After the gall has formed a small layer of white, waxy mold covers it which can be rubbed off easily. In this waxy substance the spores of the fungus are found, and when these come in contact with rhododendron leaves or branches a new area of infection is produced.

"The only way to overcome this pest successfully is to pick off these galls and burn them. It is possible that other leaves and branches may have been affected by the disease; but it is impossible to be sure till later. So it is advisable to inspect your plants occasionally to see if the disease is reappearing. On azaleas a similar fungus can sometimes be found which also forms galls. This disease is destroyed in the same way as that on rhododendrons."

A new pest, the lace-wing fly, must now be contended with. It has been brought upon plants of *R. maximum* from some of the southern states. Into the vicinity of Philadelphia it seems to have been introduced by plants obtained from England soon after the outbreak of the great war at a time when the British growers were obliged to omit the usual precautions. It is an insect scarcely more than the sixteenth of an inch long, not larger than a midge. There should be spraying, in May, June and September, with five pounds of whale-oil soap, half a pint of nicotine and fifty gallons of water.

Azaleas sometimes have leafspot—*septoria azaleae*, cured by spraying with lime-sulphur or paris green. Small crowded orange spore dots on the under side of the leaves do not much affect the plant's health.

PROPAGATION

Concerning the raising of kalmias, rhododendrons and azaleas from seed there appeared, nine years ago, an article from the pen of William Anderson, superintendent of the Bayard Thayer estate at South Lancaster, Mass., the gist of which it would be worth while to give here. He has raised several hundred thousand without difficulty. The seed should be gathered in November and sown in February or March in a house, in four parts of the leaf-soil, two of chopped sphagnum moss, and one of sand, all put through a fine sieve. Clean six or eight-inch pans should be filled one-third full of crock or rough material of other kind and tamped with moderate firmness. Sow the seed rather thickly and do not cover. Set upon a well shaded bench in a temperature of 55-60 degrees. In most houses little or no watering will be needed, after the preliminary drenching, for three or four weeks. Then, whenever the pans become fairly dry, water thoroughly with a very fine rose. Do not permit water to stand or to be excessive at any time. Pure moss can be used; but the seedlings then can not be transplanted so early nor so safely nor so easily. When three or four leaves have formed, in about three months from the time of sowing, transplant into small flats, with drainage, of soil made from eight parts of leaf-soil, three of loam and two of sand, and firmed moderately. For kalmias avoid the black peat, which is fairly good for rhododendrons and azaleas. The first Summer keep the flats in the greenhouse, for careful watering, and shade with frames of lath. If any indication of dampening off appears increase the ventilation and sprinkle the affected parts with hot sand.

If a cold frame is used sow around May 15 and let grow on in seedpans the first season, protected from severe frost the first Winter. They would be kept best in a cold cellar. The following May transplant into flats, using small tweezers with which to take hold of them. Place them into frames under glass, with a screen of lath above them, but with plenty of light and air admitted during the day. Remove the shades toward evening, but keep on the glass to protect against heavy showers. In April, or before the young plants make growth for the third season, transplant into frames, with soil only slightly firmed. Use light loam, into which fork three inches of leafsoil. Set the plants four inches apart and shade with lath till September 1, when remove the shade and expose to the full sunshine during the Fall months in

order to ripen the wood. At the end of October mulch with thick leafy covering and later cover with evergreen boughs also. Rhododendrons and azaleas grow more quickly than kalmias and need less care.

At Lindenhurst Mr. Dodds has found that the seed of various rhododendrons, both native and some of the hybrids, germinates very freely when sown in chopped sphagnum moss or in moss or leafsoil, in pans, in January. He will prick the plants off into boxes filled with two-thirds peat and one-third fibery loam. When large enough they will be planted out into frames and kept thinned out as they grow. In two years, it is expected, they will be large enough for the nursery row.

Of the azalea, both the native and the foreign, Mr. Dodds has had excellent success with cuttings. In 1920 he put the cuttings in in September in sand in the house. They took nearly four months to root. Last year he put them in in August and they rooted in four weeks, ninety-five per cent of them. Mr. Koster thinks that June cuttings are still better. Cuttings of the growing wood of rhododendrons are sometimes employed; but the percentage of those that strike, in the case of the tall-growing, both of the species and of the hybrids is small. The cutting should be of half-ripe wood, preferably cut to a heel, about three inches long, inserted in peat and sand, perhaps better under a bell glass, in August, and kept at a temperature of 45-60 degrees, increasing later to 69 degrees.

The best way to propagate rhododendrons, however, is by means of layers. The layers should be put down in Spring, preferably in March or April, according to one authority, or in early Autumn. Peat with a quantity of sand added is the best soil for the purpose. If the branch can not readily be brought down to the ground a notch may be cut half way through the branch so that it will bend but not break wholly away. Last season's growths make the best layers. Strip off a few of the lower leaves, then make a cut about one and a half inches in length with a sharp knife up the center of the shoot. This is technically called tonguing the shoot. Bend the prepared shoot very gently and fix it into the soil with some wooden or wire pegs in such a manner that the tongue formed by the cut points downward. See that it rests upon the soil at the bottom of the opening made to receive it and then press the soil firmly around the layer.

It is advised by some that the starting of the root growth can be advanced by merely twisting the branch a little, instead of tonguing the shoot, or by removing a bit of the bark.

Grafting upon seedlings should be performed in July, after the potting has been done in the preceding Spring. The plants are either kept growing in the house or carried through the Winter in cold frames. But to handle them in frames one needs two sashes, the one several inches below the other, and extreme care must be taken to protect against the sun. For the first week or so the plants are not disturbed in any way. They are left lying on their sides, partly covered with moss. After this first week and daily for the next three weeks the water clinging to the under surface of the lower glass must be allowed to run off by a slight tipping up of the sash. At the end of another week, during which the plants have been aired a little every day, some of the wild stock may be cut away. After the scion is well grown into the stock the wild stem is cut off completely. The lower sash is now removed and the plants stood upright. They can be put out in the nursery in the Spring at the same time as those that have been growing in the house. Instead of the *ponticum* should be used seedlings of the *Maximum* or *catawbiense*, for hardiness and permanency.

The Cultivation of Bromeliaceæ

DR. E. BADE

BY far the greater part of the *Bromeliaceæ*, found in the warmer parts of America where the air is saturated with moisture, are epiphytes. They do not take their food from the soil like other plants but indirectly from the tree upon which they live. Nourishing salts, etc., are washed down to the plant from the tree upon which they have built their home. The green stalkless leaves which form tightly joined rosettes with spoon shaped elongations collect and store rain water. Moisture is taken from these reservoirs which often contain soluble salts necessary for plant life, through scalelike hairs found at the base of the leaves.



The roots of *Guzmania mossiaca* are pruned.



A small pot is placed upside down in a larger pot in order to produce rapid drainage.

The majority of the *Bromeliaceæ* can only be kept successfully in greenhouses where the ideal conditions of their habitat can best be imitated, although a few can be kept in the living room. In the Summer these should be placed in the garden where they will be well shaded. Some varieties do well in flat pots or latticed boxes, others again can be attached to the bark of some tree with wire. All pots containing these plants should receive a good foundation of broken potsherds so that the water will run quickly through the root balls. Sand, turf, and charcoal is added to the pots of those plants placed in moss or fern roots. After transplanting, which should take place late in Spring, they should be placed where the temperature ranges anywhere from 60 to 70 degrees F.

These plants should be well watered during the period of their most rapid growth, but toward the Fall, this quantity should be gradually lessened in order to give them a period of comparative rest. In Winter they receive but very little moisture.

All varieties of *Echmea* are placed in a soil of partly decayed wood or leaf mould mixed with a little sand or moss. These plants should be watered with tepid water. Propagation takes place when shoots appear at the side of the plant.

Species of *Urisia* are distinguished by their very attractive and decorative variegated foliage. But in order to keep these leaves in good condition they must often be sprayed and washed with a sponge. These plants do well

in small flower pots which have received a good foundation of potsherds. The ideal soil for them is a mixture of coarse field soil, turfmoss, and decayed wood mold. In the Summer the soil should never become dry, and they must be watered with tepid water.

The large striped *Billbergia* are cultivated in moderately large pots which have been supplied with good drainage. The soil, which should not be too light, consists of a mixture of top soil, hotbed soil, decaying wood mold, and sand. They are to be transplanted either in the Spring, or after they have produced their beautiful but short lived flowers. In Summer they must be protected from the intense rays of the sun, should receive a sufficient quantity of water, much heat, and be placed in well circulated air. They multiply either by division of the roots, or by seeds. In the latter case especially then, when the flowers appear on trailing stalks.

Species of *Hohenbergii* are similarly cultivated but they do not require so much heat.

The varieties of *Tillandsia* are nearly all epiphytic. These plants, in the tropical forests where they occur, attach themselves to the trunks and branches of trees. The most peculiar species of this genus of epiphytes is *Tillandsia usneoides* which closely resembles an herpetetic eruption. Roots and leaves are absent, but the epidermis of the long trailing shoots are covered with innumerable minute scalelike hairs which can absorb both the dew and the rain thus supplying the plant with the necessary moisture. Since this plant lacks root it can attach itself to any convenient limb, branch or twig. Even those parts or fragments of this plant which may be torn by the wind and carried away are able to grow and develop into new plants.

Under cultivation these plants require an atmosphere saturated with moisture which can only be given them in a greenhouse or under bell jars similar to those used for the propagation of orchids. Placed in dry air these plants soon wilt.

The larger *Tillandsia* can be placed in a soil similar to that used for the *Billbergia*. Cultivation proceeds as in the last mentioned plant with this addition that the leaves



The plant is imbedded in *Sphagnum*.



This moss is then pressed into place with a small stick.

must be sprayed and the plant itself placed in a cool place. After blossoming it should receive less water.

Many species of *Tillandsia* can be attached, together with moss and fern roots, to some rough barked branch or they can be hung in lattice framed boxes which should be surrounded with a glass cage in order to give them a moisture laden atmosphere. They propagate through side shoots which should be left on the plant as long as possible since these are colony forming species. These young shoots should only be removed from the larger plants.

True sons of the soil are the species of *Pitcairnia* which thrive in a mixture of wood mold, leaf mold, hotbed soil, and lawn soil to which a little sand should be added to allow the water to drain off freely. The plants should be placed in diffused light, the direct rays of the sun are injurious. Shoots, which serve to increase this species,

should be removed as soon as they have developed since these only prevent the plant from producing flowers. All species of *Pitcairnia* should be well watered during the Summer months, in Winter they require but little moisture and should be watered accordingly.

Many lovers of plants enjoy placing the tops of pineapples in flower pots where they can easily be cultivated. But before the leafy crown of the pineapple is planted, it should be thoroughly dried to prevent the decay of the leaves. If the top is now planted, the roots will develop with exceeding rapidity. The older plants often produce shoots which are used to propagate this species. If the pineapple is cultivated like other soil *Bromeliaceæ*, it is likely to produce its fruit in the livingroom where its development, before it ripens, can be observed from day to day.

The Flowers of June

FLORUM AMATOR

"THE flowers that bloom in the Spring, tra-la-la" have cast off their pretty gowns and within their ovaries are growing for the perpetuation of their species.

June is now here and June weather, June whose thirty days are the loveliest of all the year, so beautiful indeed as to make us wish there were thirty-one, June of which Lowell says in "The Vision of Sir Launfal":

"And what is so rare as a day in June?
Then, if ever come perfect days;
Then Heaven tries the earth if it be in tune,
And over it softly her warm ear lays;
Whether we look or whether we listen,
We hear life murner, or see it glisten;
Every clod feels a stir of might,
An instinct within it that reaches and towers,
And groping blindly above it for light,
Climbs to a soul in grass and flowers."

Lowell was "country born and bred" and he knew well that the soul of June is grass and flowers and leafy trees, a blue sky and a balmy air and singing birds.

June flowers display a riot of colors and appear in many exquisite forms and exhale delicious odors. We hardly need to remind that June in the North is the month of roses. The Hybrid-Perpetuals this month bloom so profusely that they seem to say to us: "We are going to make such an impression on you by our numbers and beauty that you will remember us till we come again next June." We do remember them—both their beauty and their fragrance; we have not smelled of a Jacqueminot rose for a year, but we can recall its delicious scent now as we are writing. The climbing roses resting on trellises and pergolas are offering to us their thousands of blooms. The Moss, the *Pernetiana*, the *Polyantha*, the Brier, the *Rugosa*, and the *Wichuraiana* roses are contributing their wealth of flowers. The more modest but no less beautiful Tea and Hybrid-Tea are giving their lovely and deliciously scented blooms for June's Festival of Roses.

Not in a solitary splendor, however, reigns the rose in June; there are other flowers which enter into the lists against her for the prize of the "golden apple," which a god once offered as the prize for beauty, and upon which, therefore, he caused to be inscribed the word "pulcherrime."

Not all these rivals of the rose can we mention; there are so many. Here are the lilies: "Even Solomon in all

his glory was not arrayed like one of these:" *Lilium candidum*, variously called Madonna, Annunciation and St. Joseph's Lily, whose sweetly scented flowers are of purest white; *Lilium Canadense*, var. *rubrum* and *flavum*, the red and the yellow Canada Lilies; *Lilium maculatum*, Hanson's Lily, a stately and handsome species with purple spotted orange flowers; *Lilium puberulum*, the graceful and tall Humboldt's Lily, whose large golden-yellow flowers are dotted with pale purple; *Lilium Parryi*, considered by some the best of the yellow flowered species, whose flowers are marked with brown. "These are some of the Lilies which June offers us.

The many species and varieties of *Campanula*, the "Bell Flowers," the "Canterbury Bells" and the Hare Bells hold aloft on their flower stalks bells of blue and white and pink "for verger bees to swing" for June weddings.

The Peonies are a dominant feature in Flora's kingdom from early to mid-June. This is a glorious flower; no other in its season makes a handsomer or more commanding show in our gardens. In form they present many types, the "Rose," the "Half-Rose," the "Japanese," and so on, and in color they embrace all shades except blue.

For dazzling brilliancy of color no flower in June surpasses the Oriental Poppy, *Papaver orientale*, whose immense orange-scarlet flowers with purple stamens and dark purple eyes are held well up above the foliage on long strong stems for our ardent admiration. There are horticultural varieties of this poppy embracing other colors, but we like the type the best. Like the Peony this poppy is one of the hardiest of all our herbaceous perennials, but is unlike the peony in its habits in that its foliage disappears after its season of bloom, and, being renewed in Autumn, is evergreen through the Winter.

In mid-June the Japanese Iris, *Iris Iaccigata*, the most beautiful of all Irises, begins to unfold its large showy flowers, some single, others double, in shades of color ranging from white to deep purple, and sometimes beautifully veined and mottled. This Iris continues to bloom till mid-July. Massed beside a water course or pond or in the edge of shrubbery, it makes a splendid show and its flowers borne on long erect stalks are excellent for cutting.

Some of the Columbines, *Aquilegias*, are in bloom this month, both the wild species, *Canadensis*, and the cultivated. We wonder why Harlequin called his love Columbine; was it because she was as uniquely pretty in

form, feature and complexion among women as the Columbine is in form and color among flowers? What is the form of the Columbine blossom, do you ask? We suggest that you get a Columbine bloom and study its form carefully, and then take your pencil and paper and try to describe it for yourself. We ourselves despair of giving such a description of its form as to bring it clearly before the mind's eye of one who has never seen it. *Aquilegia carulca*, the long-spurred Columbine, has large sky-blue flowers; *alba*, a variety of this, has white and *flore pleno*, another variety, double blooms. *Aquilegia chrysantha*, the Golden-Spurred Columbine, bears clear yellow, delicately fragrant flowers. There are several varieties of *A. chrysantha*, some having nearly white and others yellow flowers with red spurs. *A. chrysantha* has a long season of bloom beginning in May and continuing till August. *A. vulgaris* has white flowers, whose incurved spurs are knobbed at their ends; there are varieties of this whose flowers are in several shades of blue and pink.

The *ne plus ultra* blue flower of June is the *Delphinium*, the Perennial Larkspur, of which there are several species and many hybrids. *Delphinium* flowers are borne on long stalks and are excellent for cutting. For massing against shrubbery and in the border *Delphiniums* are very effective. *D. Bellodonna* has sky-blue flowers with white centers; *D. formosum* flowers of deep blue with white centers and violet spurs; *D. sinense* flowers of gentian-blue and its variety, *album* pure white flowers. The English hybrid *Delphiniums* show a range of color from lightest blue to dark purple with white, gray, black and blue centers. The flowers of these hybrids are borne on very tall, branching, erect stems.

Digitalis, whose most common English name is Fox Glove—originally Folk's Glove, that is the "fairy folk"—but which actually has eighteen other common names is an effective June-flowering plant in the border and against shrubbery. Its specific name is *purpurea*, and that of its variety *gloxiniiflora* its varietal name being given it as its flowers resemble in form those of *Gloxinia*.

Digitalis is a biennial rather than a perennial generally, and the best way to treat it is to sow seeds of it every year or to allow some flowers to go to seed and self-sow. The pure white-flowered variety is the most desirable, but purple and pink-flowered blooms also are attractive.

Two species of *Hemerocallis* bloom in June, *H. Middendorffii*, the Yellow Day Lily, whose lily-like flowers are bright yellow and are borne in clusters of two to four on tall erect stalks; *H. flava*, the Lemon Lily, whose fragrant lemon-yellow lily-shaped blooms are carried in clusters of six to eight on upright stalks two feet or more tall. The butterflies and the humming birds call frequently on this Lemon Lily.

Lychnis chalcidonica, a plant with at least a dozen common names, some of which are Scarlet Cross, Jerusalem Cross and Scarlet Lightning, opens in June its terminal clusters of extremely brilliant scarlet flowers borne on hairy stems two or three feet tall. There is a double form, *flore pleno*, fully as handsome as the species. This *Lychnis*, the petals of whose flowers form a Maltese cross, is perfectly hardy and thrives alike in sun and shade in any good soil. There is another species, *L. viscosa*, var. *splendens*, whose small rosy-red flowers are borne in clusters on stems a foot high. This is called Catchfly, because it has sticky spots on its stems. This resists drought well and is suitable for a rock garden.

Of the June-flowering plants which have daisy-shaped blooms the *Gaillardia* is the most desirable of all. The petals of its large flowers, which are borne on stout stems about two feet high, are at their tips a brilliant yellow, but at their base maroon or red. These flowers are excellent for cutting. *Gaillardias* require free air and full

sunlight and a well-drained soil. They bloom not only through June but continue till heavy frosts come.

Pyrethrum hybridum also has flowers of a daisy-like form, some single, others double with a range of color from pure white to rich crimson; the centers of the single are yellow. The blooms are fine for cutting. *Pyrethrum* requires a well-drained sandy loam, and the full sunlight.

How long, O Flowers of June, would you keep us, if we should speak even briefly of you all? We have mentioned a few of you which we consider most excellent and which we most admire, but we are not unmindful or unappreciative of the more than one hundred others of you which hold up your pretty faces to us, as we walk through garden or field, and fill the air with your sweet odors and contribute your part to June's floral supremacy.

WHAT IS A GARDEN?

(Continued from page 172)

and gardeners call this "accidental" but to me it is the generous gratitude of the garden. Needless to say I shall always try to have them there and probably either fail entirely, or get them glaring red, double varieties.

And so it is. We plan and struggle, we care and tend, but Nature comes along and once destroys, another time assists and teaches us. We put our force and individuality into the garden, and then it asserts its own vigor, and stamps us out.

These are the things that make a garden and put to rout our designs and blueprints. We cannot give our gardens over to chance, and wait for such accidental successes, but we can allow these things a little play. They are always easily enough remedied if they go amiss. They are part of the game and half of the fun. It is the garden's own assertion, its very spirit. Give it a chance.

HOW EVERYONE CAN HELP THE WILD-FLOWERS

The adequate protection of our wild-flowers so that a sufficient supply will be preserved for the enjoyment of future generations depends today on co-operation by everybody. There must be developed a general understanding of what the needs are. Local organizations, where they exist, can answer questions about local needs. Where they do not yet exist, friends of the wild-flowers should combine to organize them. But there are some general rules which should be universally followed. Never gather too many flowers of one kind in the same locality, however common it may appear. Another rule is to pick the rarer perennials with care. If the roots come up easily when you pull them, like those of the blue bells, always use a knife or scissors, so that the plant may come up another year even if you have taken away the source of the seeds. Flowers not perennial, like the fringed gentian, should be picked very sparingly, if at all, because the supply of seeds is the only hope of the colony for the future. Be willing to use occasional complete restraint in the case of especially rare flowers, such as the orchids and the arbutus. Write for general information to the

SOCIETY FOR THE PRESERVATION OF
NATIVE NEW ENGLAND PLANTS,
HORTICULTURAL HALL,
BOSTON, MASS.

OUR COVER ILLUSTRATION

This month's cover illustration is a view of the Wild Flower and Fern Exhibition which was staged at Horticultural Hall, Boston, during May. It shows clearly the artistic and natural arrangement of the unique exhibition which was described in detail in the May GARDENERS' CHRONICLE.

Beautifying Home Surroundings

ARTHUR SMITH

THE next important feature is the lawn, which is in a double sense the groundwork of the garden picture, and a good, open lawn is the natural foundation of a natural landscape.

We emphasize the necessity that the lawn should be a good one, otherwise it will always remain a blot upon the picture, however beautiful the other features may be. A properly made lawn, suitably cared for, will continue a good lawn for all time. It is therefore worth while to construct it right at the outset, as this is the only way to ensure success. We are aware, however, that there are in this country climatic conditions existing which entirely prevent the formation of perennial lawns, and that they have to be sown or otherwise remade, every season.

Speaking generally, with due regard to the fact that every rule has its exceptions, all the center and interior of any constructed landscape should be devoted to open lawn, and in all cases a lawn should be as large and as little interrupted as conditions will permit, with plantings confined to the boundaries.

The actual surface of a lawn should of course be smooth, but it is unnecessary to alter the grade to an absolute level; in fact an undulating or sloping contour is a distinct advantage because it is more natural. Sometimes, to obtain this natural effect, undulations are made, but this requires considerable care so as to avoid the slightest appearance of artificiality.

In connection with lawns of considerable extent, it is permissible to have a few really good trees growing away from the boundary plantings, mainly towards the sides, with one or more about two-thirds of the length of the lawn distant from the house. Trees used for this purpose should be something really worth while and not common-place, and they should have sufficient room not only for the spread of their branches, such spread being invariably equal to the height of the tree, but also to always afford a vista between them. Trees on lawns should not be placed closer than fifty or sixty feet from each other.

It appears, to say the least, somewhat in bad taste to desecrate a lawn with what we term "horticultural monstrosities" like weeping trees, plants trimmed into grotesque or other unnatural shapes, or anything coming under the head of topiary work. We recently saw in the center of a lawn a planting of Privet which is kept trimmed in the form of a couch and two chairs. It is impossible to imagine what beauty can be discovered in this kind of thing; it does not even have the excuse claimed for some garden discords, that it is useful for the purpose which the articles of furniture are made for. Topiary work may be clever and require skill, but those liking it should relegate their collection of furniture, zoological specimens, and other freaks, constructed from living plants, to a place by themselves, entirely shut off from the landscape, as features of this character can never become part of a landscape but only excrescences upon it.

Having the lawn entirely open to the street prevents a garden in its real sense existing at all, as the word garden means "enclosed space." Seclusion and privacy are certainly desirable if only for the purpose of checking the entrance of dust, noise and the smell of combusted gasoline.

Deciduous flowering shrubs are the most important element in boundary plantings, although unfortunately

too many of them contain nothing else. In selecting plants for this purpose, effects for all the year should be provided for. To this end interplanting with some evergreens is conducive, as it will not only increase the color and texture in the Winter, but will also give that feeling of seclusion which is as important at that season as in Summer. Then there are the important points of Autumn colored foliage and berried effects to be provided for during what is sometimes erroneously called the dead season; the latter not only for beauty but to feed the birds.

We have previously called attention to the desirability of lifting our shrubberies out of the region of the commonplace. One may pass many gardens in succession in each of which the planting is confined to the same four or five species of shrubs, such as lilacs, forsythia, snowball, mock orange and deutzia. These are of course all beautiful, and one would not care for a garden entirely without them, at the same time endeavor should be made to do away with the monotony by having something different and making use of some of the less common and rarer subjects.

It is of course impossible, without copying a nursery catalog, to mention all the shrubs which are worth while planting, we therefore confine ourselves to calling attention to a few of those deserving of greater recognition and of more extensive use.

We have always considered that greater appreciation should be accorded to our native plants, more especially when we have to deal with difficult situations in which shrubs and trees indigenous to the locality are certain to be successful. Those members of the *Rhododendron* genus known as Azaleas fit in well with other shrubs. All the native Azaleas are deciduous and are more or less sweet scented and afford a succession of flowers from April to June. Interesting and instructive articles by Frank Meyer upon Rhododendrons are now appearing in this journal which readers will do well to study. The native Viburnums are all good and have the advantage over those known as Snowballs in that they produce beautiful fruit. Others of this genus such as the Japanese *dilatatum* and *Sieboldii* are valuable for the same reason. Another rare shrub, *Symplocos paniculata*, has berries of the exceptional color of lovely turquoise blue.

The Cotoneasters appear to be little known, but they are all pleasing for their flowers and fruit; those which are evergreen are additionally valuable for that reason. Some species of this are less hardy than others. A valuable shrub for its edible fruit is *Eleagnus longipes*. It is also worth planting for the distinct silvery hue of its foliage. There is no genus of shrubs which gives a longer period of beauty in some form or another than *Berberis*, several species of which have some attractive feature in every month of the year. The species best known in the more northern states is *thunbergii*; this is absolutely hardy and should be more used for hedge purposes instead of the more tender and less beautiful Privet. The most beautiful of this genus is *darcinii*, but this unfortunately is not hardy in the north. Among others which are hardy in the latitude of New York may be mentioned, *aristata* with red flowers in June; *amurensis* and *diaphana*, the latter being quite dwarf. *Berberis vulgaris* and its varieties may be left out of consideration, as they are the intermediate hosts to a rust attacking wheat.

In planning for flowers from snow to snow the earliest are given by the native *Benzoin odoriferum*, which adds a second period of brightness in September by its red berries. At the other end of the season in September and October, and sometimes even in November, *Desmodium* and *I'ter* are in evidence; both of these, however, die to the ground during Winter in the more northern states. *Abelia rupestris* has been previously mentioned. Where it is hardy no shrub of medium height is more valuable from the standpoint of flowers only, as it is in bloom from June until killing frost. The native *Hamamelis virginiana* is interesting on account of its flowering stage commencing late in October.

Some other desirable subjects too often conspicuous by their absence are found among *Crataegus*, *Malus*, and *Pyracantha* genera, all of which are desirable both for their flowers and their fruit.

Another native shrub deserving a place in our gardens is the Beach Plum, *Prunus maritima*, well known in some districts along the seacoast. It is especially suitable for dry, sandy places, and is valuable not only for the masses of white flowers in Spring, but also for its fruit, from which the most delicious preserve and jelly can be made. Another native suitable for like conditions is the Bayberry, *Myrica cerifera*, which forms a dense dome, withstanding the salt spray better than anything else. Its berries, from which candles are made, are a pleasing feature of the Winter. This is the plant which one of the speakers at the recent Washington conference upon the Federal Quarantine Law confused with Barberry.

Obviously there is scarcely a garden large enough to plant everything worth while, and in any case, one should make their selection with due regard to the climatic and soil conditions. There are so many perfectly hardy shrubs, able to withstand everything that comes, that the planting of those which require a lot of coddling appears to make for unnecessary labor, especially when the house is occupied all the year round. In the case where the place is only a Summer home, boxing and covering with straw envelopes which always give a suggestion of unnaturalness to the place, and point out that the plants are foreign to the situation, may be carried out for the sake of Summer effects.

While the creation of gardens by the seashore along the more northern Atlantic States presents problems of perhaps more difficulty than any other places, they are not impossible of solution. The first thing one must make up their mind to in this connection is to be content with what will live under the conditions, as failures are invariably brought about by the object lessons plainly set forth by Nature being totally disregarded not only as to the species planted but in the manner of planting and after care.

In situations exposed to strong winds and a salt laden atmosphere the getting of evergreens to live is a matter of some trouble and sometimes said to be impossible. But the trouble will disappear if one will be content with species suitable to the situation and not attempt the impossible with those that are doomed from the outset to fail. As regards evergreens, Nature plants nothing but Pines along the shore and we cannot do better than follow her example. The most reliable are *Pinus rigida*, *thumbergii*, *austriaca*, and *sylvestris*. *Picea pungens* withstands these conditions fairly well but it is waste of time to plant any others of the Spruces.

Where the area of ground will permit the necessity for creating a barrier against persistent salt winds indicates the advisability of first planting a screen of pines. Plant as closely as possible, not only to stop the wind, but so that they may afford each other mutual protection. It

is well to place *Pinus rigida* on the outside towards the sea, with the others towards the interior of the garden. After creating a living wall of this kind around the garden it will then be time enough to consider the use of other subjects in the interior.

As regards shrubs for the seashore, we have mentioned the Bayberry and the Beach Plum. *Rosa rugosa* is also excellent for the situation although it is generally advisable to prune it severely every Spring. Under conditions where the impact of cutting winds upon them is prevented most shrubs hardy in the district will do well around the coast.

The soil conditions by the seashore are invariably dry and sandy, and want of success is frequently entirely caused by the neglect of watering and mulching. The ground between trees and shrubs should always be kept covered with leaves, grass, coarse manure, seaweed, or other similar material, so that the roots may be kept cool and moist during Summer. Nature always mulches.

It is always worth while to have one's garden planned by some one who both knows plants and is acquainted with the conditions under which they are expected to grow, so that only those suitable to the environment may be used.

A Brief Report of the Conference on Quarantine 37 Held in Washington, May 15, 1922, dealing especially with the amateur and scientific case, and with the present situation and outlook.

THE committee was represented at Washington by the chairman, the secretary, Mrs. F. B. Crowninshield as proxy for Mrs. Turnure and as representative of The Garden Club of America, Mr. A. C. Burrage, and Mr. Elisha Hanson, who for some weeks previous had been co-operating with the committee as Washington representative. There were also present in behalf of related interests Mr. Leonard Barron, Editor of *The Garden Magazine*; Mr. Richardson, editor, and Mr. J. J. Lane, manager of *House and Garden*, and Professor E. A. White of the New York State College of Agriculture.

There is much cause for gratification in the fact that Secretary Wallace presided in person throughout almost the entire conference, and that the conference was thrown wide open for the discussion of any phase of the quarantine situation. This made it possible to directly inform the secretary regarding the attitude and objectives of those who criticize Quarantine 37—something that we feel had not been accomplished theretofore.

As a result of Mr. McFarland's presentation of the formal brief (which was essentially that left with Secretary Wallace on January 20, but to which no reply had been received), of two brief but vigorous statements by Mr. Burrage, one of which dealt specifically with the importation of hybrid orchids, and of Mrs. Crowninshield's plea for greater latitude with respect to the importation of small bulbs it appears that any existing misconceptions have been cleared up, and that the way has been paved for logical and legitimate modification of present obnoxious and unnecessarily severe restrictions, provided Dr. Marlatt's distorted point of view does not dominate the secretary.

Of large significance is the fact that the committee had secured, on the very eve of the conference, from a lawyer who has specialized in the analysis of departmental law and practice, a formal brief or report on the legal status of Quarantine 37 in its relation to the Act of August 20, 1912, under which it was imposed.

This brief declares unequivocally that *Quarantine 37* is illegal in that it exceeds the authority conveyed by the
(Continued on page 182)

Work for the Month in the Garden

SAMUEL GOLDING

AS soon as the first crops are over in the vegetable garden it is of the utmost importance, in the carrying out of any plan of intensive cropping, that they be removed and the space again filled with a successional crop that will mature for Fall or Winter use.

It is contrary to good practice to keep on the land anything after it has ceased to be useful, as it tends to impoverish the soil which is detrimental to the succeeding crops, and with our short growing season we cannot afford to lose time if we expect the best from the garden. It is the aim of good growers to maintain a perfect supply of fresh and tender vegetables throughout the season. This can only be accomplished by frequent sowing from now on.

Constant vigilance must be exercised to keep the plants growing freely, and to ward off the attacks of enemies, both insect and fungoid. Persistent cultivation with adequate irrigation is necessary. The improved tools for cultivation and the various systems for watering which are now on the market are labor saving devices well worth the attention of even the small grower whose space is limited.

State the late peas; if the tall varieties are grown such as the Alderman type, and brush is difficult to procure; coarse chicken wire can be used. This should be fastened up securely to a stout post to prevent sagging and consequent damage by winds or heavy rain when the growth is heavy. If the soil is of a light and sandy texture it will benefit from a good mulch of stable manure. This helps to conserve the moisture and keeps the ground cool, a condition necessary for the perfect growth of peas. If green fly appears spray the vines with Aphine. As soon as the early peas are over remove them and prepare the ground for celery, sweet corn, string beans or small root crops. Plant out celery and give an abundance of water to the earlier planted celery which is now growing apace. Give leeks and onions an occasional soaking of manure water; a little nitrate of soda is an excellent stimulant for them.

Tie up romaine and endive to secure fine blanched hearts; fasten securely the leading shoots of lima beans to the poles, as they are easily broken by wind or rain and plant out late cabbage, cauliflower, etc. Thin out New Zealand spinach, allowing it plenty of room, as it is a rampant grower. Spray the melons, cucumbers, squash and egg plant with Bordeaux mixture to prevent fungoid diseases, and spray the potatoes with Paris green to destroy the bug, and with Bordeaux to prevent blight. Cease cutting asparagus by the end of the month and spray with arsenate of lead to keep the larvae of the asparagus beetle under control.

Sow more endive and some lettuce early in July; also ruta-baga for Winter, and make the last planting of corn around the 12th to the 18th, for if it is sown later it seldom comes in.

Give the sweet peas a dressing of fertilizer; nitrate and Scotch soot are good, and they should have copious waterings in the evenings during the hot weather. If one grows the bright orange and salmon colors it is necessary to shade them with cheese cloth or other light material if we would have these grand colors at their best; otherwise they are disappointing as the sun

bleaches or scalds them badly. Keep the flowers picked daily. The newly planted Summer bedding will need plenty of water until it has become well established. The tying and staking of plants in the borders will require attention, as this is an important detail which pays to do well. Unsightly staking will spoil the effect of the best arranged borders. The plants should be tied so that they have a graceful and natural appearance.

Where the seed was sown in the borders to bloom in that position they will need thinning, for if this is neglected only a short time, the quality of the bloom suffers. Room should be allowed for reasonable development.

Plant the last batch of gladioli about the end of June, although in some localities they bloom if planted in July.

Finish the planting of dahlias. These do best when grown on a single stem, as they give better bloom and are more easily handled. Before planting, divide the old clump, retaining the tubers which have the most promising eye or growth.

All the more tender and subtropical plants can now be put outdoors without delay.

Sow the seed of biennials such as Foxgloves, Sweet Williams, Canterbury Bells for next Spring's display, and some of the smaller growing species can be sown in July. If seeds of the *Aquilegia* are sown now they will make nice plants for blooming next May. The long spurred hybrids have a wonderful range of color and their decorative, dainty blooms make them one of the most attractive plants in the garden.

Propagate now the various early phloxes; the pink and white forms of *P. subulata* are very beautiful and showy in the rock garden or borders in early Spring. If cuttings of the lovely blue *P. divaricata Laphamii* are taken as soon as they are fit to propagate, are grown on and wintered in a cold frame, and planted out in the Spring as a groundwork for the yellow Cottage or Breeder tulips it has a very charming effect. This phlox is perfectly hardy but when wintered in a frame as suggested it makes an earlier growth and blooms right for associating with the tulips.

The hardy candytuft, *Iberis semper florens*, *Cerastium tomentosum*, *Aubrieta*, *Nepeta*, *Arabis*, *Alyssum saxatile* are all well known and worthy Spring plants to be increased now.

Remove all seed pods from rhododendrons and lilacs. This will help and encourage the plants to form strong new growth.

After the marvellous beauty of the iris and the exquisite peony comes the queen of the year, the rose, and now its legions of lovers will be anticipating many happy hours with them during the next few fleeting weeks when they are at their best. If we are to have unalloyed pleasure in an abundance and perfection of bloom, constant watching and attention is essential or that arch enemy, the rose bug, will bring ruin to the most choice blooms over night. Several antidotes are recommended to cope with this ravenous pest. Spray with Wilson's O. K. Plant Spray or Melrosine, as these are easy to use, but it is a difficult matter to banish him from the garden. Another source of annoyance is the rose slug worm which seems more abundant than usual this year. This

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The Greenhouse, Month to Month

GEORGE F. STEWART

THE greenhouse man must always think ahead. No sooner does Summer arrive than we think of next Winter's flowers and plants, and how a succession can be kept up. The last of June young roses must be planted on the benches, so that when frost comes, a good crop may be had indoors. A good strong loam is what they require to grow in. Add about a third of well-decayed cow manure, and to about twenty shovelfuls of the mixture, one shovelful of bone meal, also a sprinkling of lime. This ought to carry them well through the hot weather. After the benches have been thoroughly cleaned and washed on the inside with hot lime, about four inches of the compost may be packed firmly all over. The rest of the space should be reserved for future top dressings. The young plants should be planted firmly in the compost and all wires for tying put into place. Keep well watered and syringe on all bright days. Full top ventilation is necessary except when it rains, and then it may be lowered enough to shed the water freely.

Old rose plants may be carried over successfully longer than many believe. We have a fine bench of "Ophelia" in its seventh year, and this year we have as good a crop as ever we have had. However, we never dry them off severely, only enough to dry out the soil well, so that it may be released quite easily from the roots. We leave a nice ball around each plant and clear the rest down to the boards. The leaves are quite green on them, and we cut them back from a foot to fifteen inches high. They always seem to break well all over the plant. We give the same compost to them as to the young plants. They are on their own roots and always throw up well from below to build up the plant. I have come to the conclusion that it is unnecessary to plant young plants often if the old ones are healthy and doing well. We are only going to change this year as we want to try "Mme. Butterfly" instead of "Ophelia."

Young carnations, I believe, are better if planted indoors about the last week in June. They may not appear to make much top during the hot days, but they are making root, and when the cool nights come, they will grow rapidly and will not give short stems in the Fall. My experience has proved that there is little stem rot under the indoor treatment and that insect pests are more easily controlled, in fact, if due care is taken, they may never be seen. A good loam, to which has been added a third of manure, may be lightened with the addition of sand if it is too heavy. I do not like bone meal for carnations but I think they like lime and respond to a good fertilizer, especially when the cool nights come on during the Fall. Let the bud show before they are pinched, as I am sure that they break much better. Give plenty of air, top and bottom, all Summer and moisten the floors and under the benches on all bright days. They should have a good syringing when they require water but let the foliage be dry before night.

Keep begonias growing along into larger pots as they need it. Good loam, decayed cow manure and flaky leaves in equal parts is what they enjoy growing in. A little charcoal is beneficial to keep the soil sweet. A night temperature around 65 degrees should be maintained. Every gardener should try the tuberous rooted *Locotrana* hybrids, if he has a decent greenhouse to

grow them in. There is a wide range of colors among them and they make excellent plants—I saw one last Fall four feet in diameter, which was the finest grown begonia of any kind I had even seen. It was a leaf cutting about one year old. The Lorraine type has been so much grown commercially that many private families are tired of it.

Keep an eye on the young cyclamen plants and do not allow them to get pot bound. They will now do well in a cold frame if bench room in the greenhouse has to be used for something else. Fumigate once a week to make sure that insects are held in check. The mite is very troublesome. An excellent grower told me he kept clear of it by going over his plants every two weeks, washing out the crowns with a nozzle and a gentle spray of water. He said that it was the only sure remedy he had found.

Feed *Amaryllis* plants that have flowered regularly with liquid manure and Clay's fertilizer. A good development of leaves is essential to ensure good flowers next season.

Gloxinias will also take a liberal amount of food to make them flower well. Do not wet the foliage as it is likely to make it spotty. This applies also to *Achimenes*.

Chrysanthemum bush plants should now be in their flowering pots and kept well up to the glass to encourage a sturdy growth. See that they are pinched regularly and evenly. Syringe them regularly as red spider is likely to gain a foothold. It is advisable to place a few stakes around them to prevent the shoots from splitting.

It is now time to get a batch of poinsettia cuttings in. Take them off with a heel and pot singly in two-inch pots in equal parts of sand and sphagnum moss. Place them in a tight case and water them every bright day until they show signs of rooting. Air the case out two or three times a day by opening it for a few minutes. By this treatment we hardly ever lose a cutting.

Euphorbia Jacquinæiflora is also a useful plant around December and January and can now be rooted in an ordinarily warm cutting bed. Water it well when it is put in the sand, but allow the sand to become fairly dry between waterings.

Early sown *calceolarias*, *cinerarias*, and *primulas* will now be ready to pot off into small pots. Equal parts of loam, leaf mold, sand, and dried cow manure make a nice compost for first potting. A greenhouse facing north is an ideal place to grow them in all Summer and failing that, a cold frame. Give plenty of air and shade from strong sunlight. Watch carefully for green fly and thrip. Fumigate with Nicofume once a week as a preventative.

All hard wood plants can be plunged outdoors in ashes about July first. On no account let them get too dry at the roots. Syringe them once or twice a day on all bright days and weekly applications of Clay's fertilizer until they set their flower buds will do wonders in keeping them with a nice healthy color, if they are well rooted. Any extra strong shoot which may be outgrowing the others should be pinched to preserve the symmetry of the plant.

Fuchsias and specimen geraniums thrive better outdoors

or on a veranda for the Summer. Geraniums if placed in a sunny position and well fed, will flower all Summer. Fuchsias will stand a little shade and they require stimulants to keep them flowering.

We have a plant of *Kalosanthus coccinea* in flower just at this time. It is a plant that is not seen very often and yet, when in flower, it is one of the most showy. It keeps in good condition when blooming for three weeks. After it has finished flowering, we cut it back about six inches above the pot and do not over water until it breaks, which it does all over the old stem. After it has started well, we repot it in a pot about two inches larger, in equal parts of *Osmunda* fern root, fibery loam, and sand and add a little sheep manure. It is potted firmly and placed in a sunny position outdoors for the Summer. Cuttings may be secured from the old flower stems, which will soon root in sand. Cut them into pieces about an inch and a half long.

Another evergreen shrub flowering now is *Mackayii Bella* with pale blue spotted flowers. It is a handsome evergreen bush and to have it flower successfully, must be subjected to a drying process during the Winter months, when it should show signs of wilting before being watered. It grows vigorously in a strong loam from the time it finishes flowering until Fall, but it requires shading throughout the Summer. After September it stands full sunshine.

Calanthus that is rooting well should be fed with manure water, and nothing is better than cow manure. We use a good handful to a three gallon watering pot once a week. The house they are growing in should be kept rather close and humid with a little fire heat in damp weather.

Cattleyas which are making their growth will demand plenty of water. We find that the best method is to give them a thorough drenching and then allow them to dry out well before repeating. They also respond to soft coal soot water and a light liquid made of hen manure. It should, however, be weak and done with a careful hand. It is quite foolish to think that orchids do not like stimulants; for instance, ask the question: What is the analysis of the compost they are potted in and of the water they are watered with? Do they not secure a great deal of decayed vegetable matter in their native habitat, and manure from winged animals?

Phalenopsis are growing nicely. Watch out for snails which may be in the compost, for they soon destroy the young growths. A little stimulant as advised for cattleyas we find they respond to, but it has to be applied with care. Scale is somewhat troublesome if the sponging of the leaves is neglected.

Odontoglossums which have flowered and need repotting are better off if one waits to do this until the young growth appears. Water them thoroughly whenever they require it. Do not disturb them at the root unless the compost is in a sour condition and there is not room for the young growth to develop. The same applies to *Miltonias*, except that they require an intermediate temperature.

In the grape houses fruit will be ripening in the earlier houses. Give plenty of top and bottom air to develop the bloom. The later houses will be setting, and some of them will be ready for thinning out. It is essential that the berries have plenty of room for development. Too many bunches should not be left on one vine. After thinning out, an application of Clay's fertilizer or Thomson vine manure will assist in developing the fruit. Point over the borders with a fork occasionally to give the roots a chance to breath air.

A succession of melons should be kept up. Pinch side growths so that they will not overcrowd.

Continue to think ahead, and try to improve on last year's methods.

A BRIEF REPORT OF THE COMMITTEE ON QUARANTINE

(Continued from page 179)

Act. The report made by the Congressional Committee when the act was passed is quoted in obvious support of this contention.

When at the opening of the conference the legal question thus raised was introduced by Mr. McFarland, Secretary Wallace, agreeing that it was not a matter for discussion at a general meeting, also agreed that it ought to be definitely settled, and that opportunity would be given to have it reviewed at a conference at which both sides could be present with counsel. Such a conference was held on May 31 and the Solicitor of the Department now has the matter under consideration. Obviously if the quarantine is found to be illegal there is no object in working for modifications of its regulations until it and they are brought into thorough accord with the law.

On the other hand, pending the settlement of the legal question the secretary has authorized, and the Federal Horticultural Board has agreed to hold, conferences with groups interested in specific modifications. There appears reason to believe that the reasonableness of the demands for at least some of the recommendations made can be proved to the satisfaction of the Federal Horticultural Board. The board having left for California immediately after the conference, further discussion of modifications will be delayed for a few weeks.

This committee will keep you informed of important developments as they occur, or of any need of further active co-operation that may arise. On the whole it feels that from the amateur standpoint the Washington conference was a distinct success in that it—

(1) Gave all the facts full publicity and brought them to the personal attention of the Secretary of Agriculture;

(2) Elicited acknowledgment by the Federal Horticultural Board that certain of its rulings have been arbitrary and might suitably be subjected to examination;

(3) Raised the fundamental question of the legality of Quarantine 37, thus bringing about a definite study of the situation;

(4) Assured the discussion of such matters as the admission of more kinds of bulbs and other plants, the more general issuance of permits to amateurs and other specific recommendations made on May 15;

(5) Gave opportunity for official delegates from England, Belgium and Holland to present admirable arguments in behalf of a broader policy as regards international horticultural trade and reciprocity in international control of plant pests and diseases. The calm and clear statement of Mr. W. G. Lobjoit, head of the government service which protects England adequately against the introduction of plant diseases and insect pests without any of the discriminations, annoyances and hardships of the American practice, was most impressive.

Very truly yours, E. L. D. SEYMOUR,

Secretary Committee on Horticultural Quarantine.

June 3, 1922.

GARDENER'S CHRONICLE

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GARDENERS' CHRONICLE
286 Fifth Ave., New York

The Plants of Marsh and Moor

WILLARD N. CLUTE

PLANTS, like people, are most interesting when they have done something out of the ordinary. The common plants of our fields and woods lead a somewhat prosaic existence and do not attract particular attention, but when a species has adopted some unusual device to conserve its water supply, to get up to the light, to distribute its seeds, to avoid too much water, or what not, it at once becomes distinguished from its fellows and an object of curiosity. So important is water in influencing plant growth that those species which have to contend with conditions in which there is too much or too little moisture have unusually strong claims to our attention. The desert plants are of perennial interest but many species at the other end of the list, which are rooted in mud or immersed in water, are scarcely less attractive.

When we examine the water plants, however, we find that they are by no means alike in their structure or physical requirements; in fact, there is probably no other large assemblage of plants in which the lines defining the component groups are more sharply drawn. As a good illustration, take the case of the pitcher plant. Everybody knows that this plant grows in wet places, but with no more information than this as a guide, one might search for months without finding a specimen. The plant grows only in a certain kind of wet place and it is useless to look for it elsewhere. For this reason it is often entirely absent from large areas. But when the pitcher plant is once found, there is certain to be found with it a number of other peculiar plants which are its constant companions. Together they make up an association which is always characteristic of certain soils.

The plant groups that inhabit our wet lands are so conspicuous that the common people, without any special knowledge of botany, have distinguished and named the principal forms. The words bog, fen, moor, swamp, and marsh carry with them definite ideas of vegetation and each suggests a different phase of it. The marsh may be said to be the progenitor of all the others. It might be defined as an area that is covered with water for the greater part of the year. Naturally it has fewer species than drier regions, but such forms as find it habitable often occur in immense numbers. Among familiar examples are cat-tails, bulrushes, water arums, pickerel weed, arrow-heads, and coarse sedges. Little by little the marshes fill up, partly with their own plant remains and partly by particles of soil brought in by the rains or blown in by the wind. They then become swamps and ultimately meadows, but not without several changes of plants by the way, in which may be found lilies, orchids, iris, skunk's-cabbage, marsh-marigold, boneset, Joe pye-weed, asters and a host of sedges and grasses.

The marsh, however, does not always become a swamp. Sometimes the vegetation it produces accumulates beneath the water and slowly turns to a brownish mass known as peat. Under such circumstances we are likely to call it a peat-bog, but there are various types of peat-bog as the plant covering of such areas readily shows. If the soil water happens to be alkaline or neutral, the vegetation will resemble that of the ordinary swamp. In this country we do not have a distinctive word for such an area, but in England it is known as a fen. The fen is most frequently found near the mouths of rivers where for any reason the flow of water is obstructed. When cleared and drained the fens are among the most productive of soils.

When the soil water in the bog happens to be acid, a very different, and in many respects remarkable, flora appears. The acid in the water renders absorption difficult and we have what is essentially a desert flora in the midst of water. This is the home of the pitcher-plant, the sundew, the bladderwort, the butterwort and other insect-catching plants. Cranberry vines cover large areas, the buck-bean, the cotton grass, the bog ferns, and the marsh cinquefoil grow in the standing water, lady-slip-pers, calopogons, arethusas, and other rare orchids rise from the mossy hummocks and the huckleberry, marsh rosemary, leather-leaf and numerous other heaths form dense thickets. In the more open places the characteristic bog-moss, known as *Sphagnum* or peat moss, cover the surface for long distances to the exclusion of everything else. For this reason, such places in Scotland are often known as "mosses." The moss is the most important of the peat-forming plants since it has the ability to grow at the tip though decaying below. The leaf structure is of such a character as to allow it to absorb much water, several times more, in fact, than the best absorbent cotton can take up. *Sphagnum*, because of its absorbent properties, was largely used for surgical dressings during the war and it is the material so commonly used by florists for packing.

In Europe the acid type of bog is often called a moor to distinguish it from the alkaline fen. The moor so frequently mentioned in English literature, however, does not always indicate a peat bog. There are drier areas also underlaid with a kind of peat known as "upland peat" which is acid in reaction and in which may be found a number of the bog plants or their near relations. These are also known as moors. Occasionally they are called high moors to distinguish them from the real or low moors. The high moors are densely populated with species of heath and these long ago gave the name of heath to the region and the name of heathen to the people who inhabited it.

WORK FOR THE MONTH IN THE GARDEN

(Continued from page 180)

attacks the foliage of the plants causing them to burn brown and shrivel. If left alone the slug worm will denude the bushes, and in any case it is very disfiguring and becomes a severe check on the growth. It is often active before preventive measures are taken as it is at first difficult to detect until the foliage shows the work of the pest. Arsenate of lead, O. K. Spray, or a nicotine wash will check it, and these also take care of green fly at the same time.

Keep the privet hedges well sheared and edge up garden and lawn paths and drives. Give cobble gutters and weedy drives a dressing of weed killer. This is best applied after some rain as it is then more effective than when applied in dry sunny weather for it evaporates quickly and does not then penetrate the roots so well and therefore the effects are not so lasting.

The man who thinks he has done everything he can do, has merely stopped thinking. He is what might be called "up and out," and excepting that he has more money, his case is not really very different from that of the man who is "down and out."—*American Magazine*.

More About Budded Versus Own Root Roses

ARTHUR SMITH

I CAN say with absolute sincerity that it was a pleasure to read Mr. Craig's criticisms because I know full well how valuable and worth while his opinions are; because it has always been a matter of regret to me that there is so little discussion in the CHRONICLE connected with the theory and practice of our profession as we can always learn something from each other, and also, as far as I am personally concerned, criticism, however adverse, is always welcome, even if for no other reason than that it shows the critic has done me the honor of reading the article.

Regarding the question at issue, it appears to be that Mr. Craig to some extent misses the main point connected with my statement that, "When a rose is upon its own roots it is less liable to Winter-kill, for if it *should be killed to the ground it will invariably send up new growth from below.*" The main point I wished to make is covered by the words in italics as, while I fully admit that some varieties, especially among Hybrid Teas, do better when grafted, at least for the first year or two, it seems to me that in the case of roses upon their own roots a more or less considerable portion of the rose is under the ground and therefore protected. As Mr. Craig states, burying roses (entirely) gives them protection (in severe climates), therefore he will doubtless admit that when only a portion is buried, as in the cases of roses on their own roots, that portion will receive so much additional protection.

Having practiced gardening for two years in the Berkshire Hills district of Massachusetts, I know something about the New England climate. While I never attempted to grow Hybrid Teas there, I had some Hybrid Perpetuals upon their own roots and wintered them out of doors without loss. As Mr. Craig says, far too many roses are planted too shallow. I believe that when roses on their own roots do die out it is invariably caused by want of drainage, and in this connection am prepared to admit that the *manetti* stock will live in a badly drained soil when an own root rose will die, but neither in this country nor in Britain have I ever known an own root rose to die when the soil has been properly drained.

I know that many thousands of grafted roses are distributed in this country every year, but at the same time there is one old-established nursery firm in my state that, for the reasons I have stated, has for some time ceased sending out grafted Hybrid Teas, and makes a special point in its catalog that *all these roses are upon their own roots.*

Naturally I endorse what Mr. Craig says about roses doing so well in Great Britain, and, while grafting is extensively practised there, "own root enthusiasts" are very prevalent, and William Robinson of that country, whom I venture to think Mr. Craig will admit is no mean authority, in his "English Flower Garden," writes some very severe strictures upon the practice of grafting roses.

I fully agree with Mr. Craig that I ignored a large number of good roses in all classes, principally by reason of the fact that they are too numerous to mention. My prejudice in favor of Paul Neyron is mainly on account of its perfume, as scented roses have during recent years become scarcer in our gardens, and also perhaps because there were so many of this variety in the garden in England where I spent my childhood days.

Damage from mice nesting in strawy manure is invariably caused by its being placed in position too early. This important point was unfortunately omitted from my

article, although I had emphasized it in a previous article on Winter Protection of Hardy Plants. It is not necessary for the good of the roses to put on this mulch until after the ground has become frozen to the depth of an inch, at which time the mice will have taken up their Winter quarters elsewhere.

ANOTHER READER COMMENTS

T. A. Weston

I NOTE that "Florum Amator" in his interesting notes on "Sweet-Scented Flowers" includes the musk, *Mimulus moschatus*. He would confer a favor on many, especially in England, if he could say where there is a strain of seed that will produce scented plants. For the past 20 years or so, scented musk has been a rarity. One may buy musk seed or plants in England, but scented, no; the chance is one in a million and, as a result, the old time demand for musk has vanished. No one can explain why the scent has disappeared.

I was interested, too, in Mr. Craig's remarks on roses. Own root roses with but few exceptions, are utterly useless in England and I venture to believe that the slow development of rose gardens in America in past years was largely due to the policy of selling tiny rooted cuttings. Fifteen or more years ago these tiny scraps were almost the only class offered; good enough perhaps for California, Florida or under glass where growing conditions are regular. But even in such places the budded or grafted plant is the thing in these days; a few firms prior to Quarantine 37 realized this, and made a point of importing English and Irish grown roses.

If there was any question as to the uselessness of tiny own root roses, it has been dispelled in recent years. People will far sooner pay \$1 for one good plant than accept 12 rooted scraps. It is all a question of education.

The so-called hustlers who in past years thought European commercial methods were too slow have been confounded and it is now a case of supplying strong open ground bushes that will flower freely the season of planting. As people become more educated to what quality in plants means, the less opportunity will there be for the speed of merchants to make a living. It is idle to assume that one can get by the customs that have stood the test of time in Europe just because we happen to be in America. Now that perennials have come into their own, the flooding of the country with mediocre stocks of seedlings is not going to satisfy the enthusiast. Named subjects from reputable raisers are what the people of Europe want, and when one sees the goods it is easy to understand. No, sir! real plant lovers want plants that have individuality and quality and are not going to be content with "flopoodle" pansies, pyrethrums, delphiniums and the rest. Quality plants whether seedlings or propagated by other means, are not obtained by factory methods. You have to start off with the real goods and then follow the rules that older folk than we found necessary.

Which reminds me that the N. Y. Agricultural Station has now, after persistent experiments, announced that small potatoes planted whole, are equal or even better than large tubers cut in pieces. While the British and presumably the German have for scores of years followed this practice, we preferred to cut our salable potatoes for planting, despite the knowledge that the average per acre in America and Canada is only half that of Britain and Germany.

Departments of Foreign Exchange and Book Reviews

ARTIFICIAL FERTILIZERS

Their Use in Spring and Summer.

THERE are still many gardeners who are almost afraid to use artificial fertilizers, and who, in consequence are finding themselves in difficulties owing to the high cost and genuine scarcity of dung, on account of the rapid supersession of horses by machinery. It is for such gardeners that the present article is written, not for the man who has used artificial fertilizers for the last twenty years, for he, of course, will "know all about it."

From this time forward until about the middle of September artificial fertilizers should be in full use. It is often the early and the late applications that count most. Crops can be rushed through a danger period or pushed on to be ready for a certain date. One cannot do this with liquid animal manure whatever anyone may say to the contrary, and one certainly cannot get the beauty of color in either flowers or vegetables without "artificial" that one can with them.

Like almost everything else, artificial fertilizers have been classified and, if I may say so, over-classified. Nearly every garden writer has some pet classification of his own. He either classifies them as regards to the crops that they benefit most, or as regards their solubility in water, or, again, as to the metals of which they are compounds. The present writer would like to abolish all this over-classification, which makes the subject confusing and so often leads to disaster in the case of the inexperienced. Let them be divided into four great groups and stick to that.

The most important group is that of which the principal ingredient is nitrogen. Nitrogenous artificial fertilizers comprise nitrate of soda, sulphate of ammonia, nitrate of ammonia, nitrate of lime and a few others. All are very soluble in water and remarkably quick in action. They produce leafage and nothing else, therefore they should not be used for flowers or vegetables where undue quantities of foliage are undesirable. If, however, crops are wanted to make leaf growth, they should be given nitrogen in one of the forms named above, using it at a rate not greater than one ounce to the gallon of water or half an ounce to the square yard.

The second group is that of potash manures. Potash itself is a metal which few gardeners have seen and none need want to see. Its salts, however, are exceedingly useful; in fact, such crops as potatoes and, indeed, many roots can hardly be grown to perfection without them. Being a metal, potassium combines readily with acids, and one of its compounds, saltpetre, is often used as a nitrogenous manure. In reality, however, it can be used for supplying both potash and nitrogen to the soil, and it will be noticed that it does not make plants "run to leaf" to the same extent as a purely nitrogenous fertilizer. Phosphate of potash is another of its combined salts, but this will be treated in the next section.

Beyond these are two salts of potash for use namely, sulphate of potash and wood ashes, which contain a percentage of carbonate of potash. I need hardly give particulars of the value or use of wood ashes since even the veriest amateur understands it. Sulphate of potash is a valuable fertilizer for application throughout Spring and Summer. It may either be used dry at the rate of one ounce to the square yard or in solution at the rate of 1 ounce per gallon of water.

The third group of artificial fertilizers consists of those supplying phosphates to the land. I have already mentioned phosphate of potash in this connection, but it is not recommendable for general use owing to the difficulty of storing it. It has a disagreeable habit of deliquescing, and must therefore be kept in a damp-proof tin if it is to be stored at all. About a quarter of a pound of phosphate of potash is ample for a ten-gallon cask of water.

Among other phosphatic fertilizers superphosphate of lime is probably the best known, and an effort should be made to obtain a sample with the highest possible percentage of solubility. There is always a considerable amount of superphosphate which will not dissolve, and it is therefore a good plan to make up a stock solution and allow the sediment to settle. If a pound of superphosphate of lime is dissolved in a tub of water holding about eight gallons and then one part of this stock solution used with every two parts of water, a liquid fertilizer quite strong enough for ordinary purposes will be the result. It does not pay to give superphosphate too strong on account of its being a very acid manure. While potash fertilizers increase quality, phosphates induce earliness.

The last group consists of general artificial fertilizers. One of these, which deserves carefully experimenting with, is sulphate of

iron, as it intensifies the color of both flowers and foliage. In large doses it is very poisonous, but I have successfully used it up to about half an ounce to the gallon of water.—*The Garden.*

CLIMBING PLANTS IN HOUSES

THERE are differences of opinion regarding the employment of climbing plants in the greenhouse or the stove, more especially, it must be said, when these climbers are planted with a view to covering, partially or wholly, the roof of the house. Many good plantmen object to such plants, giving as their reason the fact that climbing plants interfere with the light and make the objects grown beneath them drawn, weakly, and unsatisfactory. Other equally good plantmen maintain that (especially in lofty houses) the use of climbing plants is effective, and that by the employment of suitable plants for growing beneath them no great difference can be noted between plants grown in partial shade and others grown in a house the roof of which is entirely unobscured. Both schools of thought obtain adherents, but it may be said, as in most cases, that there is a middle way, by following which climbing plants may be cultivated with but little detriment to others grown beneath them. The middle course, naturally, is to plant such things as are not too rampant in growth, and to thin these rather freely when occasion requires. Two plants, formerly popular, may be mentioned as examples of climbers to avoid. These are *Cobaea scandens* and the *Tacsonias* generally. The commoner *Passifloras*, too, might also be classed as objectionable, while, however useful it may be, *Acacia dealbata* might very well be added to the black list. Apart from these, other climbing plants, if judiciously used, need not be tabooed. It is, of course, difficult to decide at what time thinning ought to be done—more especially in early Spring, when some climbers will be coming into bloom, while others are only starting into growth. The most ought to be made of the former, while the latter should receive attention early, so that the young shoots may not be entangled. In training it ought to be remembered that formality is objectionable and not only from a natural point of view, but it is irrational as well. Loose ties and, in some cases, festooning the growths are very much more satisfactory in every other way. When thinning becomes imperative let it be done freely and in anticipation. Above all, and especially in Spring, a close watch should be maintained on climbing plants, so that outbreaks of aphid may be promptly dealt with. Light fumigations are better given on alternate evenings than a heavy dose in one evening. A few plants may be suggested which are not of too rampant growth. For the stove *Passiflora quadrangularis*, *Clerodendron Balfourianum*, and *Thunbergia laurifolia*; for the greenhouse *Lapagerias*, *Abutilon Boule de Neige*, *A. Golden Fleece*, and *A. Sanglant*, *Plumbago capensis* and its white foam, and *Habrothamus (Cestrum) elegans*.—*Gardening Illustrated.*

SOME WEeping TREES

WEeping TREES have considerable decorative value, and for many positions in the garden, where an upright, tall-growing specimen would be out of place, they might with advantage be planted. It is as isolated specimens that trees of pendulous habit look their best, since any overcrowding does not permit of the development of a well-balanced head. Where space has not to be considered, the weeping forms of the Ash, Beech, Lime, Elm, and Birch are worth considering. But the object in view is to point out a few trees for gardens of moderate size. They are mostly flowering trees, suitable for either lawn or shrubbery. Foremost are the flowering Cherries. These are quite hardy, free flowering, and are among the striking features of the month of May. One of the best varieties for the purpose under notice is *Cerasus rosea pendula*, with single rose-colored flowers. Quite as good in every respect is the white-flowered *C. Mahaleb pendula*. Another gorgeous race of Spring-flowering trees is the flowering Crabs. No pen picture can adequately describe the beauty of these, for they are all blossom, and May is the month they are at their best. The best weeping variety is *Pyrus Malus pendula*, "Elise Rathke," and the color of the blossom is pink. *P. salicifolia* is another of unusual charm, owing to the silvery hue of the Willow-like leaves. The Snowdrop tree, *Halesia tetrapetala*, with drooping fascicles of white flowers resembling Snowdrops, is also pretty in the shrubbery. For a similar purpose *Cytisus scoparius Andreanus* may be included, the bright golden-yellow flowers, with a reddish-chestnut tinge in the centre, being

corresponds in June. As a lawn specimen, *S. pinnatifida japonica pendula* with its weeping, Acacia-like foliage and creamy-white flowers, which appear at the end of the shoots, is worthy of note. Laburnums are time-honored favorites, and though there is a weeping form, *L. vulgare pendulum*, the variety *L. Bossi* is quite as attractive, owing to the length of the bright yellow racemes.

In conclusion, a word in favor of weeping Roses may, perhaps, be permitted, for of all ornamental flowering trees they are the handsomest. Budded on tall Briars, they soon make massive heads, and no system of training displays the beautiful trusses of bloom to more advantage. Suitable Ramblers for the purpose include the well known Hiawatha, Dorothy Perkins, Excelsa, and Mrs. F. W. Dyar.

ROSE GARDENING, by Mary Hampden. Charles Scribner's Sons, New York.

The ardent rosarian ought by all means to possess this newest addition to the big library of his idol, for it tells well not only how to manage roses but also how to enjoy them. Under as many as forty-two chapter headings are treated all possible aspects. But, written by an enthusiastic English woman, it is a book that must be used with caution by the American amateur with even a fair amount of practice and is apt to involve the tyro in regrettable experiences. In the United States of America only in the Puget Sound region can roses be grown as easily as they are grown in England. Many exceptions must consequently be taken to the many long and very interesting lists of varieties with their descriptions. The American fancier furthermore will miss such varieties as Radiance, Red Radiance and General McArthur among those named for bedding; Columbia and several others among those that are "excellent roses for picking"; and Silver Moon among the Hybrid Wichurianas; while it is strange that in a book written by a European no mention is made among the Teas of Lady Plymouth, nor among the Hybrid Multifloras of Caprice Rouge, nor among the fragrant roses of Garbe Rose, perhaps the sweetest smelling of all climbers, nor of Mme. Maurice de Luzé as a rose of remarkable fragrance, nor of Mrs. Herbert Hawsmith as having lovely color, nor of Marie Pavio and Orleans as two of the finest Polyanthas.

In the lists there is gratifying accuracy in spelling the names, except that of Dr. Van Fleck lamentably appears for Dr. W. Van Fleet, Anne of Gierstein for Anne of Geierstein, Blanc Double de Combert for Blanc Double de Coubert, and, as in American catalogs all too commonly Gruess an Teplitz for Gruss an Teplitz and Tausendschon for Tausendschoen. The one named here last is repeated in one list under the name of Thousand Beauties, which, of course, is but the translation of its German name.

The advice concerning practical operations is judicious and clearly expressed; it is strange only that the author's experience with suckering has not persuaded her that the plant ought not be set only so deep that the union of a budded rose is just covered. (In connection one wonders that Europeans are so slow to take up with the Japanese *multiflora* as stocks.)

But the work has many redeeming features. The eight colored plates, picturing eighteen important varieties, are more successful than have been most attempts to imitate on paper the rich and rather elusive tints of the double rose. They all prove again, however, that in western Europe the hues of nearly all roses are brighter and more intense than in this country. Particularly commendable are the chapters Briar Roses, The Whims of Roses, Rose Pruning, Disbudding and Feeding Roses, in which are given twenty-five recipes for fertilizing, Watering Roses, and Curing the Ills of Roses, which contains twenty-eight prescriptions.

The book is least satisfactory in treating of garden plans and general arrangement; most of the designs for beds are fantastic and if followed out would involve endless labor in trimming the grass around them.—F. B. M.

THE AMATEUR'S BOOK OF THE DAHLIA, by Mrs. Charles H. Sargent. Doubleday, Page and Company, Garden City, N. Y.

In view of the long-time vogue of the *Dahlia* it is strange that not till now has it had consecrated to it a complete and systematically arranged book. Excepting the rose alone no garden flower of greatly diversified form and requiring and deserving so much study and experience in management has been grown by so many amateur gardeners as has the *Dahlia*. At last there has appeared this neatly made volume, excellent in its scholarly grasp of the entire wide field and presenting in nearly ideal form all the phases, historical, esthetic and practical. In an entertaining style, spiced now and then with a little modest humor, are set forth all imaginable topics including even Dahlia Shows and a well thought out chapter on "Dahlia Culture in the Open Field and in the Garden." The book is a complete and valuable work for the amateur.

The well arranged volume ends with a chart in which appear, in alphabetical order, the names of several hundred carefully selected varieties, each with a small illustration of its form.

venient blank spaces are left for the owner of a copy of the book to insert notes on deserving new varieties which are continuously to be expected by regions almost in the case of a flower so easily and so quickly brought to blossom from seed of its varied and distinct types. These blank spaces might be regarded as a confession of the author's inability to offer lists of recommended varieties that are quite up-to-date and completely satisfying to the more enthusiastic fancier. She has, of course, kept in touch with originators in the various parts of the country, not excepting those of the Pacific coast; but she has found it manifestly impossible to embrace in her work very many of the supremely fine new dahlias raised recently in California. The amateur, for whom the book is written, could wish only that more pictures had been used, particularly colored ones, and that the chart were accompanied by a presentation of the different types in pictorial form.—F. B. M.

FRUIT GROWING, by Benjamin Wallace Douglass. The Bobbs-Merrill Company, Indianapolis.

FRUIT GROWING, by Benjamin Wallace Douglass. The Bobbs-Merrill Company, Indianapolis. In opening the book at once inspires confidence by declaring that, as the business of fruit growing is extremely affected by local conditions, as is shown, "the endeavor has been to lay down basic principles upon which the whole business rests; where new methods are mentioned they are based on experiments confined not to a few trees but to some hundreds of acres and over a period of months but years of work." And in keeping with the sense of reliability felt by the reader as he reads is the attractive and entertaining character of the style; it is quite worthy of the Hoosier State which has produced so notable a crop of authors as well as of fruits of the field; nothing could be finer, for example, than the historical sketch that introduces the chapter on Grape Varieties.

Some statements will be found by most readers just a little startling. One is that there can be no such thing as a pedigreed tree, for the "parent" tree produced the fine fruit not because of any inherent quality of the tree itself but because it was planted in a congenial soil, had a congenial climate and was well cared for; a Rambo that produces little knotty, worthless apples may be the parent of a fine Rambo tree just as easily as could a tree that bore only fine fruit. There are wise words about the habit of growth of different varieties of apple trees, about using fillers in planting, about dynamiting before setting the trees—in certain soils and under certain conditions it may be useless and even harmful; about cultivation and mulching—clean cultivation and dust mulching are best, but cultivation should cease by the middle of August and a vigorously growing cover should be over the ground by the middle of October at the latest, while on hills the young orchard should be cultivated as long as possible without too much loss of soil from washing and then seeded to grass or clover so that the mulching material will be grown in the orchard; about fertilizing—as a rule fertilizers applied on orchards in grass give results while they do not give results when applied to cultivated orchards; about pruning—by the time our tree has reached the age it should begin to produce fruit our annual pruning should be reduced to a minimum; about spraying; about harvesting and marketing—the tendency should be toward growing fruit in small orchards to supply local demand, in attractive parcels; about planting large trees—there is no more wicked phrase in horticulture than the nurseryman's alluring "immediate results."—F. B. M.

GARDENING, by A. B. Stout. World Book Company, Yonkers-on-Hudson.

This is an elementary school text treating of the science and art of growing vegetables, designed especially for junior high schools. The subject is developed through a combination of home and school activities and is correlated with other school subjects. The practical directions are full and complete so that the teacher can devote much of his time to the wider aspects of the work and thus make the study of general cultural value. But it is a book to be recommended to the more mature person also who, without having had opportunity to study gardening under instruction, desires to know every detail, from the breeding of plants and the growing of the seed to the gathering and the storing of the crops. The authoritative character of the volume is attested by the fact that the author has been from boyhood a home gardener, has been a teacher in elementary schools, in the high school, in the normal school and in the university and for nearly three years taught gardening to classes of convalescent soldiers and sailors at the New York Botanical Garden, where he is now director of the laboratories; the different parts were carefully examined also, in advance of the publication, by recognized experts and successful gardeners in various parts of the country.

The book is attractive in appearance. The 188 pictures are nearly all from photographs and are unusually instructive, with very few exceptions. Quotations, collectively entitled Garden Lore, emphasize the esthetic and ethical aspects of gardening.—F. B. M.

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THE ANNUAL CONVENTION

The local committees for the convention to be held at Boston, September 12 to 15, are busy laying out an interesting program for the members at large who anticipate attending the 1922 convention in that city. A joint meeting of the convention committees under W. N. Craig, who is the general chairman, will be held this month and a definite program will be agreed upon which will be announced in the July issue of THE GARDENERS' CHRONICLE, together with the hotel that has been selected as the headquarters of the association at the convention, hotel rates, etc., and to whom to apply for reservations.

The members of the association in and around Boston are most enthusiastic to make the 1922 convention, which will be the second N. A. G. convention held in that city, a rousing success to show how the association has progressed since the first Boston convention was held there.

Interesting and instructive trips to inspect the many fine estates and historic landmarks of that part of New England where the convention will be held are being arranged, as well as lively business sessions for the discussion of problems of vital interest to the members of the gardening profession.

N. A. G. ADOPTS GARDENING COURSE

The Board of Trustees and Directors have endorsed the proposed course for training men in the gardening profession to be established at the Massachusetts Agricultural College, Amherst, Mass., under the supervision of a committee of the National Association of Gardeners and the college authorities. It is anticipated that this course will commence with the terms opening this coming September. In accepting this plan the Board of Trustees and Directors was unanimous, as it felt that the National Association of Gardeners was taking a step in the right direction to give men interested in making gardening their life profession an opportunity to gain both a theoretical and practical knowledge of gardening under proper supervision.

The course as proposed is briefly outlined as follows:

Purpose.—The basic idea of this plan is to combine the benefits of scientific college training with practical apprenticeship in gardening under the joint supervision of the Massachusetts Agricultural College and the National Association of Gardeners.

Qualifications.—Pupils must have common school education, reasonable command of the English language, some practical experience in the field of horticulture and show a distinct aptitude for horticultural pursuits.

First term of theoretical instruction comprises 12 weeks beginning late in September.

Second term of theoretical instruction comprises 12 weeks beginning January 1.

Summer season is from April 1 to September 20 and will be spent at a good horticultural establishment where the student will gain practical experience under the joint supervision of the College and Committee of the National Association of Gardeners.

Third term of theoretical instruction comprises 12 weeks and begins late in September.

Fourth term of theoretical instruction comprises 12 weeks beginning January 1.

Fifth term of theoretical instruction begins about the middle of March and covers 12 weeks.

Apprentice year.—At the conclusion of the above program the students showing zeal, industry and merit will be placed in a horticultural establishment to gain varied and effective experience under the supervision of the College administration and the National Association of Gardeners. The apprenticeship year will not be less than 12 months.

Examination of students.—At the end of the apprenticeship period an examination in practical and theoretical horticulture will be given.

Students' certificates.—Students who satisfactorily pass the examination will receive suitable certificates from the National Association of Gardeners and the Massachusetts Agricultural College.

THOMAS HATTON

The association deeply regrets that it must announce the sudden death on June 8 of one of its directors, Thomas Hatton, following an operation at the Presbyterian Hospital in New York City. Mr. Hatton had not been in the best of health for the past year but complained of feeling considerably worse three weeks previous to his operation. His death came as a shock to the many friends he had in the gardening profession who regarded him as being in the best of health. For the last seven years Mr. Hatton was superintendent of Sea Acre, New London, Conn., the beautiful estate of Dr. and Mrs. Tracy Farnam, which position he accepted after resigning as superintendent of Greystone, the estate of Mr. Samuel Untermyer, Yonkers, N. Y.

He is survived by Mrs. Hatton, one son and two daughters. Mrs. Hatton and her children have the heartfelt sympathy of the members of the association in their bereavement.

AMONG THE GARDENERS

Word has just reached the Secretary's office that D. L. Mackintosh, of Alpine, N. J., a trustee of the association, met with a serious accident the first part of May when he was run over by an automobile. Mr. Mackintosh was confined to his bed for more than four weeks and is only now able to move about on crutches, and it will be some time before he will be able to go about again. The Secretary's office is sure all the members of the association will indeed be sorry to learn of Mr. Mackintosh's misfortune.

Roderick M. Crocket, who just recently started in business for himself, came to this country in 1908 after serving his apprenticeship in England and was employed by R. & J. Farquhar & Co., Boston, until 1917, when he went with Cadwell & Jones, of Hartford, Conn., for three years. Mr. Crocket returned to Farquhar & Co. in 1920 at the call of the late Mr. John Farquhar to undertake some work, but which did not materialize because of the death of Mr. Farquhar. In May of this year Mr. Crocket resigned his position to engage in business in the horticultural field for himself at Cranford, N. J.

LOCAL SOCIETIES

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The monthly meeting of the above society was held at Port Chester, May 9. There was a good attendance and a fine lot of exhibits, and the awards were made as follows: 1st prize, James Stuart, 3 pots of calceolarias, also awarded a Culture Certificate; 2nd prize, George Hewitt, pot of *Schizanthus*; 3rd prize, Wm. Smith, vase of antirrhinums. Other exhibits were made by Thos. Ryan, vase of carnations; James Tough, sweet peas; H. F. Bulpitt, tulips; Alex. Smith and Alex. Greig, larkspurs; Thos. Ryan, 3 pots hydrangeas. Vegetables, 1st prize, Thos. Ryan; 2nd prize, James Tough; 3rd prize, H. F. Bulpitt.

Special committees were appointed for the coming flower show to be held in September. Mr. Read of the E. C. Converse Fruit Farms, of Greenwich, Conn., gave an interesting talk on the spraying and pruning of fruits from the commercial growers point of view, which was well received by those present. Mr. McGregor of the Salarecene Co., Stamford, Conn., and Mr. Morrison of Wilson Plant Oil Co., both gave a short talk to the members. Four petitions for membership were received.

HARRY JONES, Cor. Secy.

SEWICKLEY, PA., DAHLIA SHOW

The Second Annual Dahlia Show to be held under the auspices of the Garden Club of Allegheny County and the Sewickley Horticultural Society will be held September 27-8-9. Last year's show met with such generous support from the public that it has been decided to hold the show for three days instead of two, as last year.

The preliminary schedules have just been issued, and while the number of classes have been considerably reduced, larger displays are called for; in fact the schedule is an ambitious one, and if everything goes well the show will eclipse anything of the kind ever seen in the Pittsburgh district. The Sewickley dahlia growers did themselves great credit last year and certainly intend to go one better this year.

Groups of 100 square feet are called for and one class calls for 50 blooms of 50 varieties, four types and not less than six of a type. Some strong competition is looked for in these classes. Table decorations and other special classes will be provided for in the final schedule.

There are classes for amateurs and the local papers are carrying periodical notes on the culture of dahlias which undoubtedly will stimulate interest among many who hitherto have not thought seriously of growing exhibition flowers.

The planting season is now on and enthusiasm is keen.

Manus Curran, president of the Sewickley Horticultural Society, is chairman of the Show Committee, and John Carman is secretary-treasurer, who together with the various committees, representing the Garden Club of Allegheny County and the Sewickley Horticultural Society are working hard to make the show the success it deserves to be.

WINIFRED N. JONES, Chairman Pub. Com.

CLEVELAND HORT. SOCIETY

The regular monthly meeting was held in the Church of Incarnation, May 11, with R. P. Brydon in the chair. It was decided that the society have a field trip once a month for the next four months to visit the surrounding estates and nurseries.



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The exhibits of the evening were Darwin tulips grown by F. McNicoll and Fred Heyl. They were exceptionally well grown and caused a good deal of discussion.

A motion to the effect that the June Flower Show should be passed up this year and to hold a chrysanthemum show in the Fall was carried. Two new members were elected.

W. J. BRUCE, Secy.

ST. LOUIS ASSOCIATION OF GARDENERS

The St. Louis Association of Gardeners held its last indoor meeting of the season, in the Forest Park Greenhouses May 3d. This meeting was in memory of Charles Muhlendorfer, a charter member of the association, who died a year ago. Mr. Muhlendorfer in his "last will" donated \$20 to the Gardeners of St. Louis, and this sum was expended for refreshments during the evening. Mr. Muhlendorfer was one of the old-time school of gardeners, having served his apprenticeship in various noted establishments in Germany and France. He was well known among the local craft, and one who never missed a meeting of the association. He was connected with the Park Department of St. Louis for more than fifteen years. Ernest Strehle and the writer related incidents of Mr. Muhlendorfer's life. The evening was pleasantly spent in retrospect and reminiscences.

During the short business session preceding the memorial and social part of the evening the following resolution was passed unanimously:

Whereas, The St. Louis Association of Gardeners are opposed to the wholesale destruction of Redbud (*Cercis canadensis*), and Flowering dogwood (*Cornus florida*), by automobilists and other visitors of the woods, who break the plants to pieces for the sake of the flowers, without considering that by so doing, these charming plants will rapidly disappear from the woodlands near the roadsides throughout the State of Missouri.

Be it therefore Resolved, That the corresponding secretary be instructed to have our protest made public through the press.

L. P. JENSEN, Cor. Secy.

TARRYTOWN HORT. SOCIETY

The May meeting of the above society was held in the Masonic Hall, May 17th, President Wilson presiding, and a large gathering of members present, also a delegation from Westchester and Fairfield Society.

Wm. Scott's prize for best vase of outdoor flowers was won by A. Anderson with a fine display of *Iris*. Very noticeable amongst the other exhibits were several fine plants of *Calceolaria Stewarti*, a fine vase of *Godetia*, also a splendid vase of *Antirrhinum* "Nelrose Pink." A Dahlia show was unanimously decided upon, to be held for the benefit of the Tarrytown Hospital. A committee was appointed to co-operate with Westchester and Fairfield Society to make arrangements for Annual Field Day. James Scott delivered a very interesting talk on the Progressive Age of Horticulture. Mr. Scott laid particular emphasis on the fact that, while great strides have been made with a certain number of plants and flowers, yet there was a great field open, both for new creations and improvement in a great number of flowers, a study which Mr. Scott believes could and should be taken up more by gardeners on private estates. A vote of thanks was extended Mr. Scott upon conclusion.

W. G. WESTON,
Reporting Secretary.



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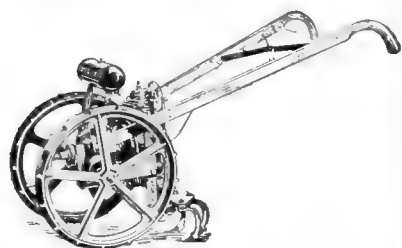


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GREATER NEWARK DAHLIA AND FLOWER SHOW

The Greater Newark Dahlia and Flower Show will be held at the Robert Treat Hotel, Newark, N. J., September 13, 14, 15. There have already been many entries made from New York, Long Island, Pennsylvania, Connecticut and New Jersey for the commercial, professional and amateur classes. Many garden clubs have taken space, also dahlia societies and commercial dahlia growers. This is the first large dahlia show ever to be held in Newark and it is expected that there will be approximately 50,000 blooms on exhibition. Besides the dahlia exhibits there will be aster, gladiolus, basket effect of roses and little garden exhibits. Schedules are to be had on application from Fred Sachs, who is promoting this enterprise for the welfare of Newark, at the Robert Treat Hotel.

RHODE ISLAND HORT. SOCIETY

The June exhibition of the Rhode Island Horticultural Society will be held in the ball room of the Narraganset Hotel, Providence, R. I., Friday, June 23.

INQUIRY FROM U. S. DEPT. OF AGRICULTURE, BUREAU OF PLANT INDUSTRY

The United States Bureau of Plant Industry, Washington, D. C. (Laboratory of Plant Pathology), which is now working on Delphinium leaf-spot will be glad to receive material on it from any part of the country. Fresh specimens, addressed to this laboratory, should be sent dry and wrapped in paper.

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NETHERLANDS HORT. & BOTANIC SOCIETY

The Netherlands Horticultural and Botanic Society (Nederlandsche Maatschappij voor Tuinbouw en Plantkunde) under the high patronage of H. M. the Queen-Mother, have decided to hold an international horticultural congress at Amsterdam on the oc-

casión of its fiftieth anniversary, September 27, 1923. Papers will be read about various subjects of scientific research, of practical breeding, horticultural education and landscape architecture, etc. Trips are planned to the most important centres of horticulture in Holland. In the same days the Section Amsterdam of the Society intends to or-

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ganize a great horticultural exhibition. Further information may be found in future.

For the organizing committee,

JHR. G. F. VAN TETS, *President*,

DR. M. J. SIRKS, *Hon. Secretary*.

Bergweg 55, Wageningen, Holland.

THE AMERICAN ROSE SOCIETY

At the executive committee meeting of the American Rose Society it was decided to accept the invitation extended by the Syracuse Rose Society to hold the annual meeting of the American Rose Society in that city, in recognition of Dr. Mills' efforts in establishing rose societies throughout New York State. Upon Mr. J. Horace McFarland's request that he be released as chairman of the membership committee, Mr. Joseph J. Lane, of *House & Garden*, was appointed in his place. The membership now numbers 2,487. President Pyle reported that his firm had propagated 1,700 plants of the Mary Wallace rose for the Department of Agriculture. It was decided to plant out the stock of the Mary Wallace rose thus far propagated so that the dormant plants in two year sizes might be distributed to the firms who will have made application by December 1, 1922. It was further voted that a request should be addressed to the Department of Agriculture to allow the American Rose Society to cooperate in the introduction of other Van Fleet novelties.

Office of the Secretary.



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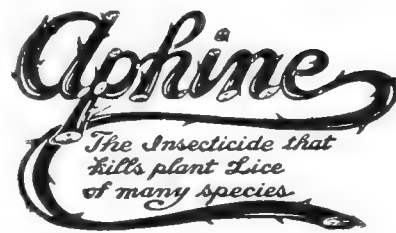
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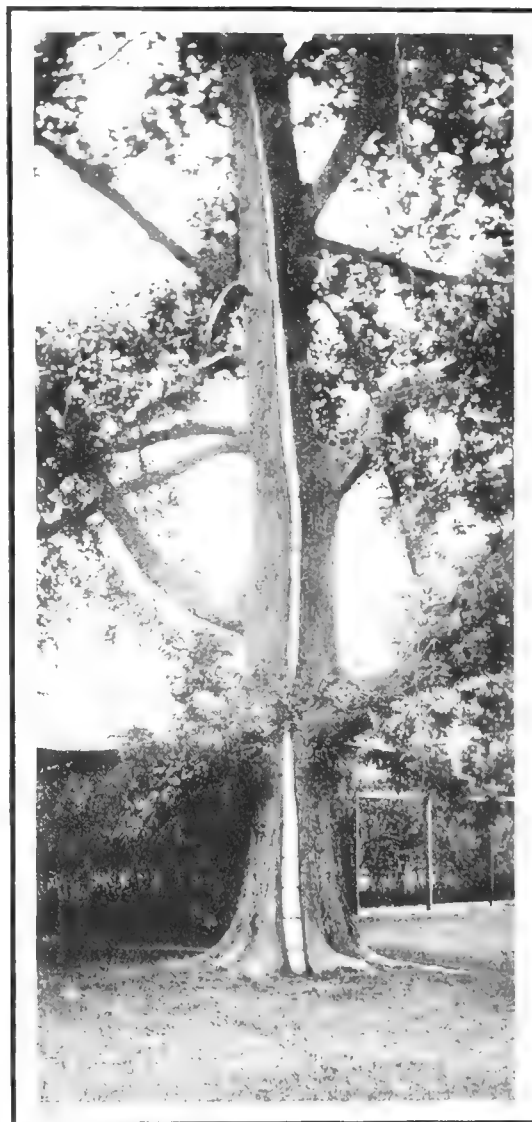
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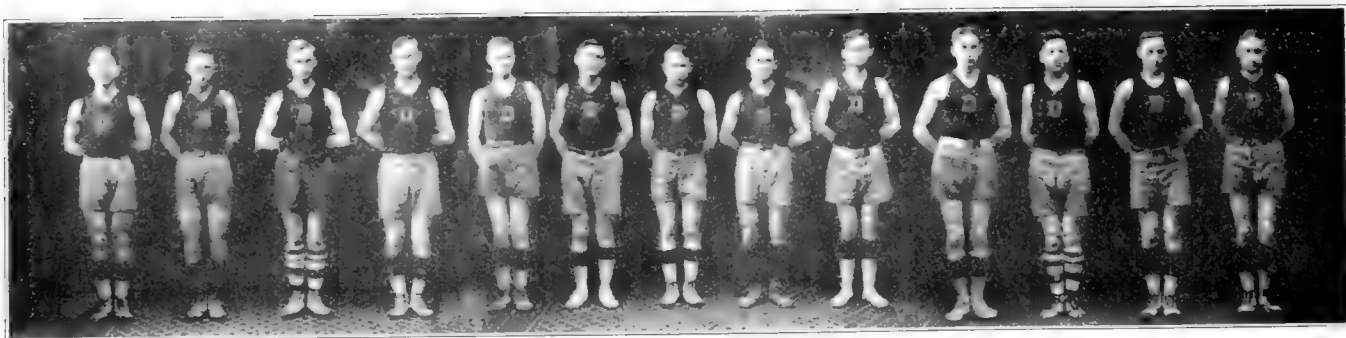
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Class of 1922, Davey Institute of Tree Surgery. Thorough scientific education, plus practical skill trained into them, makes these young athletes master Tree Surgeons

A Million Dollar Business in Saving Trees

By Martin L. Davey, General Manager

THE Business of The Davey Tree Expert Company is now running at the rate of one million dollars for 1922. It has taken more than twenty years of steady building to reach this volume. The Davey Company sells nothing but service—the service of carefully selected, highly trained, scientifically educated Tree Surgeons, who save trees without guessing or experiment, when they can be saved. This service is available almost everywhere in the eastern half of the United States. Nearly fifteen thousand clients have been served up to this time, many of them regularly.

Lieut. Colonel Frank K. Hyatt, treasurer of the Pennsylvania Military Academy, in a letter written to The Davey Tree Expert Company, December 2, 1921, said:

"Three of your men are performing tree surgery at the college and while I had only engaged them for two days, their work was of such character that I was compelled to hold them longer. In fact, they will probably be with us four or five days.

"They seem to have thorough knowledge of their work and the foreman in charge is a very unusual man. It gives me pleasure to congratulate you on the character of work which your employees are doing."

This letter is typical of many hundreds of voluntary letters of commendation received by the Davey Company from its clients. They come regularly from every section served by Davey Tree Surgeons. It is significant that nearly every letter emphasizes the high type men, their apparent skill and ability to do their work with accuracy and thoroughness and speed, but more particularly the fact that they are efficient and zealous workers.

The evolution of Davey Tree Surgery compared to the automobile

I do not remember that every last client is 100% satisfied. That would be too much to expect from a human organization. But more than 95% of the clients are fully pleased with both the work and the service. Nor would I claim that the Davey organization has always been perfect. It has been a long and hard road, but it has been a road of progress.

Davey Tree Surgery has been before the public for more than twenty years. You recall how often it broke down, how many times it was laid up by the roadside?

You remember its imperfect mechanism, its poor lighting, the hard job of cranking? Well, the fundamental principles of the automobile were the same then as now. The wonderful advance has been made in the refinements and the mechanical improvements. Then think of the really marvelous piece of machinery that you buy in the modern automobile!

Just so with Davey Tree Surgery. The fundamental principles were the same fifteen or twenty years ago as today. It was then relatively crude and imperfect. But honest effort and a determined purpose have produced refinements and mechanical improvements and scientific accuracy that are both marvelous and inspiring.

Only two or three men out of a hundred applicants are finally accepted

However, it is the human element of the Davey organization that I wish to describe. The high-type men, their surprising efficiency, their zeal and skill and knowledge are the result of something back behind. That something is a policy that could produce no other result.

From time to time we need additional men. We run advertisements in the cities within a reasonable distance of our headquarters, giving our specifications. Many replies are received. An information blank is sent to each applicant, in which he must give his life history. If a hundred information blanks are returned, our experience has shown that not more than fifty seem to meet our requirements. The others are cast aside.

We then send our representatives to these cities and notify the fifty to report at a certain hotel for personal interviews. Out of the fifty men thus interviewed, we select not more than five who seem to be the right kind.

A regular training field where practical training is given to every man

These five are brought into Kent (Ohio) for practical training, where we maintain a regular training field. These five are put through a thorough course of practical training for several weeks, at the end of which we select not more than two or three as qualified and make of the right stuff.

Thus, out of an original hundred definite applicants, we get not more than two or three. The process of selection, though it is severe, works wonders and gives us unusual men for the most important part of our work.

Those who finally pass are sent out into the field, always under the direction of master Tree

Surgeons. They simply grow into the work and acquire almost intuitive skill.

A chief expert travels regularly from squad to squad

Then, we have a chief expert who spends all of his time traveling from squad to squad to check up on all the details of the work and the merit of each individual—to see that our high standard is consistently maintained. Occasionally he tells us that a certain man is not our kind and should not be in the Davey organization. That man is promptly dismissed. Very often he tells us that certain men are doing especially fine work and recommends advancement. Such men are promptly advanced.

So the really good men remain with us—and they like their jobs mighty well. Naturally enough, they give superior service.

Constant supervision by local representatives

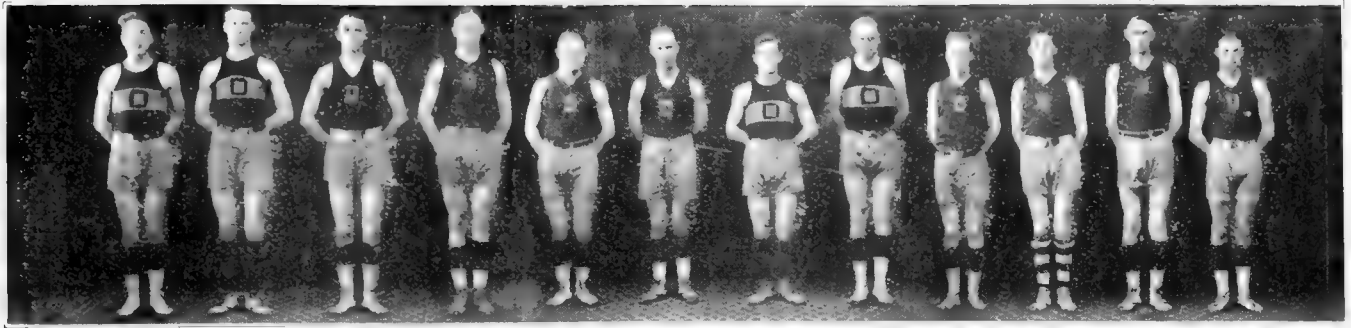
In addition to this, a number of squads are under the constant supervision of each local representative, of whom we have nearly thirty whose highest self-interest requires watchful care of the interests of each client, to see that he gets the maximum service.

More than this, we require periodic reports on every man in our field force. Our local representatives give detailed monthly reports on the foremen under their supervision. Each foreman gives a monthly report in great detail concerning each man in his squad. Every bit of information from every source about each individual goes into his personal service record. And everyone knows that his service record is complete and strives to keep it good.

The only place in the world where the science of Tree Surgery is taught

When a man in the field force has reached a proper state of development, he is brought into Kent to attend our resident school. This course covers two years—four months each year. We maintain a regular school with complete library and laboratory equipment and a corps of instructors with fine scientific training from various colleges and universities, plus special training in the Davey organization. There is no other school in the world that teaches Tree Surgery, so we maintain the Davey Institute of Tree Surgery as a matter of practical necessity.

In this school we teach only those things required to make real Tree Surgeons—nothing superfluous or unnecessary. The course includes Botany and Dendrology, Pathology and Entomology, Soils and the Feeding of Trees, Spray-



"Do it right or not at all."—JOHN DAVEY

ing and Fruit-growing, and above all the Theory and Practice of Tree Surgery.

Every man in the Davey organization is a trained man—Davey trained

When a man has been with us long enough, has had the necessary amount of complete training, and has demonstrated to us his ability and qualifications, he is entrusted with the handling of operations then and only then.

Every man in the Davey organization is a trained man—Davey trained. If a man should apply to us for employment and say that he is an expert and understands all phases of the work, recommends himself highly we say to him, if we should happen to need men, "All right, you may start in at the bottom and show us." Very few of them ever come and we are just as well satisfied. Our experience has shown us that not more than one in ten of these so-called tree men from the outside is the right kind of man. None of them are real experts when they come to us. All of them have many things to unlearn.

The Davey Research Department does the experimenting—the client's trees are never experimented upon

In addition to all these other things, we maintain a Research Department in charge of scientists of practical experience. It is their duty to work out every scientific and practical problem of Tree Surgery, as fast as possible. They have done wonderful work. They gather data from every available source, particularly from the experience of the Davey organization, in addition to original experiments. Every experiment is conducted in Kent by our Research Department and never on the trees of a client.

For instance, our Research Department has worked out a list of "forbidden trees," those which experience has demonstrated are not worth complete treatment or do not respond properly to treatment. On these trees our experts are permitted to do only first-aid work.

A national organization that carries with it an assured protection to tree owners

There is no other national organization in our field. There are, of course, many local imitators. It is an unfortunate fact that there are mighty few good ones among them. We would be happy if they were all good and well qualified. But who will supervise them? Who will train them? Who will provide the discipline that will hold them to high-quality service? Who will pass judgment on the results of their work?

There are quite a number, who have never had any contract with the Davey organization, who claim falsely that they are Davey men. There are some, unfortunately, whom we have

been obliged to let go for obvious faults, who attempt to capitalize on the prestige of the Davey name, to our detriment and to that of the profession we have built up and have endeavored to honor.

The unseen things that make quality are only possible because of large volume

In the Davey organization it is the unseen things (rigid selection of men, practical and thorough training, supervision of chief expert and local representative, resident school, research department, standardization of methods and organization discipline) that make real quality and lasting merit. On a business of nearly three-quarters of a million dollars in 1920, we spent three times as much on these unseen things which make quality as we made

in profit. In spite of the depression, we did a business of almost six hundred thousand in 1921 and spent four times as much on these hidden things that make quality as our profit amounted to. The business of the Davey Company is now running at the rate of one million dollars for 1922.

Davey methods have been standardized. Davey work is the same in Boston as it is in Chicago, the same in New York as in Kansas City, the same in Montreal as in New Orleans. Davey experts are of uniformly high type, all thoroughly trained, all carefully selected and developed. And best of all is organization discipline that requires and maintains a constant high standard down to the smallest details of work and service.

A tree-man may fool the public but he cannot fool us

It has seemed to me that the greatest thing the Davey organization does for its clients, over and above all these other things, is that of relieving the client of all worry and responsibility in the selection of the men who are to treat his priceless trees. A tree-man may fool the public, most of whom know little about trees. But he cannot fool us. A man must be right in every sense of the word or he cannot go very far in the Davey organization.

We, who know Tree Surgery values, select the men to whom this work of very great importance is to be entrusted. We know they are right and worthy of your confidence and our confidence or we would not send them to you. They come to you with our seal of approval.

They carry with them the most priceless possession we have—our reputation. We are as jealous of that reputation as a good woman is of her good name. Business and professional success are merely results. The causes are behind the scenes. And that is the reason for this little story of the Davey organization.

THE DAVEY TREE EXPERT CO., Inc.,
307 Elm Street, Kent, O.

Branch offices with telephone connections: New York, Astor Trust Bldg., Fifth Ave. and 42d St.; Boston, Massachusetts Trust Building; Philadelphia Land Title Bldg.; Baltimore, American Bldg.; Pittsburgh, 331 Fourth Ave., Buffalo, 110 Franklin St.; Cleveland, Hippobrome Bldg.; Detroit, General Motors Bldg.; Cincinnati, Mercantile Library Bldg.; Chicago, Westminster 1112; St. Louis, Central National Bank Bldg.; Kansas City, Scarritt Bldg.; Montreal, 252 LaGauchetière West.

Davey Tree Surgeons are near you—if you live between Boston and Kansas City. They are easily available and handle operations of any size, large or small. Write or wire Kent, Ohio, or nearest office.



JOHN DAVEY
Father of Tree Surgery

John Davey gave to the world the science of Tree Surgery. Before the publication of his first book the original "Tree Doctor," not even the idea of the scientific treatment of trees existed. John Davey created the term "Tree Surgery."

Every fundamental principle of it was the product of his genius and love. Every improvement and refinement has been worked out in the organization which he brought into being and inspired. But the greatest contribution which John Davey has made to the world, has been to translate into popular form the fact that the tree is a living, breathing organism.



MARTIN L. DAVEY
General Manager,

who made of a father's dream a business reality and built the Davey organization.

"And yet the tree lives—it breathes. It has a real circulation. The tree digests its food and assimilates it. It has sexual processes that are just as real and beautiful as in any other form of life. It has the power to adapt itself to its environment. To be sure, it lacks intelligence and a nervous system and the power of locomotion. But in all the other elemental processes the tree functions just as truly as man himself."

"This question of reforestation is of monumental importance. America can not continue to exist as a virile, forward-moving Nation unless we protect what we have and start to build up that which we have so ruthlessly destroyed. We can not afford to be a Nation of vandals much longer. America must reforest, or America must drink the bitter dregs of national decline and impotency."—Excerpts from a speech in Congress, March 3, 1921, by Martin L. Davey, of Ohio.

DAVEY TREE SURGEONS

Every real Davey Tree Surgeon is in the employ of the Davey Tree Expert Co., Inc., and the public is cautioned against those falsely representing themselves. An agreement made with the Davey Company and not with an individual is certain evidence of genuineness. Protect yourself from impostors. If anyone solicits the care of your trees who is not directly in our employ, and claims to be a Davey man, write Headquarters for his record. Save yourself from loss and your trees from harm.

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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

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No. 7

The California Garden

ALLISON M. WOODMAN

CALIFORNIA has been called the "land of fruits and flowers," and well may she be given that term, for, traverse the length and breadth of the state, everywhere, verdant plains, meadows, and hillsides will greet one, and orchards filled with blossoming fruit trees will presage future yields of rosy tinted, richly flavored fruits.

California has long been the Mecca for thousands of world tourists who come to visit the beautiful natural parks, to sojourn awhile in her lovely cities, and to enjoy the delightful climate for which the state is so justly celebrated. Many Easterners, enthusiastic over the possibilities of California, decide to dispose of their holdings and to come out to the Coast. Later, after becoming settled, these new residents write back to friends and relatives, resulting in a new influx of settlers.

What are the distinguishing characteristics of the California landscape? First in importance is the wonderful mountain scenery; then in succession magnificent forests containing some of the largest trees in the world, beautiful lakes, rolling foothills, extensive, almost flat valleys, coastal regions. We must also include the many splendid orchards throughout the state, essentially a California product, and which almost seem to form an integral part of the landscape.

California is a land full of scenic wonders; within its confines is to be found every feature of landscape. In these scenic beauties and marvels may be found certain ideas which can find adequate expression in artificial landscape effects.

The Yosemite Valley is to California what the Royal Gorge is to Colorado, or Yellowstone Park is to Wyoming, or the Berkshire Range is to Massachusetts, or the Potomac River is to the District of Columbia. It is an epitome of all that is beautiful and majestic in nature. Small in extent, but bordered by gigantic cliffs that seem to be artificially wrought out of stone, it teems with natural

bits of landscape, park-like in character, and possesses water-falls which for sheer beauty and power have no peer in all the world. In close proximity to Yosemite Valley, and scattered throughout the state, are groves of gigantic Redwoods and Sequoias which are unique among trees.

Wonderful in its setting in Southern California, with Los Angeles as the keystone. The picture presented here is that of snow-capped mountains, bordering a valley, varying in fertility, but made rich and productive through artificial means, offering groves of citrus trees, bearing golden fruits. The flat interior regions merge gradually into the foothills, and from thence into the Sierra Nevada Mountains.

In Central California the cities of San Francisco, Oakland and Berkeley are unique in their commanding outlook over the spacious San Francisco Bay, and in the background of mountains and trees. The moderating influences induced by close proximity to the Pacific Ocean make it possible to produce fine gardens, with flowers blooming the year round.

Northern California presents every variety of landscape from the flat valley of the Sacramento River, and the undulating country bordering the valley, to the densely wooded Sierras on the East, and the Coast Range on the West. In the extreme north Mt. Shasta forms the key to the Sierra Nevada Mountains and the Cascade Range. This sublime mountain, approached by a series of smaller mountains, is almost terrifying in its extreme isolation. Lake Tahoe, near the Nevada state line,

vies with the Yosemite Valley in popularity.

Coupled with this diversified landscape is the fact that California possesses every variety of climate, although the climate usually associated with California is that of a mild equable nature, with no marked seasonal changes, but with a distinct period of rainfall. The Summer season



All sorts of rock plants find a haven on this rock stairway.

merges into Autumn with scarcely a perceptible break; the Winter season may or may not be severe; the change from Winter to Spring is gradual; in regions along the coast there is little difference between Spring and Summer temperatures. The interest aroused in the East by the everchanging seasons is compensated for in California by the wealth of flora that persists in the green state all the year.

Two factors contributing to such favorable climatic



This pergola stands at one end of a knoll overlooking San Francisco Bay and the Golden Gate.

conditions, and affecting a considerable percentage of the population of California, are these: Close proximity to the Pacific Ocean, giving a good part of the state somewhat of an insular climate; mountain barriers on the eastern and western borders, deflecting cold polar winds.

Many new residents from the East find it difficult to become accustomed to the flora, radically different in many respects from the flora of the East. The dry turf during the Summer season is also distressing to some, but, whereas a green turf is characteristic of the East, California can revel in the golden brown turf, which furnishes an effective contrast to the dark green of the Evergreens.

The true Californian revels in the brown Summer covering of the hills, which may be destitute of trees, or with a few oaks clustered in a narrow ravine. On the other hand, the Easterner is transported in the sight of magnificent elms, maples, oaks, and other deciduous trees, which could find no other suitable setting than a green turf.

California has been spoken of as "one vast flower garden." This is true in one sense, for there are thousands of native species scattered throughout the state, but it is untrue that the whole of California is ablaze with color. Frequently, the most settled parts are deficient in native flora, and must rely on the importations of exotic trees or shrubs, or the utilization of native stuff from other parts of the state. Due to the benign climate of most of California, it is possible to grow every kind of flower outdoors.

It is of primary importance, before planting a garden, to investigate the flora of a particular region or of the immediate vicinity, and let that form the basis for any future plantings. Failing this, introduced types of trees and shrubs, harmonizing with the native flora, and adapting themselves to local conditions, may be used.

Of all our native trees the oak, and particularly the Live Oak, known botanically as *Quercus agrifolia*, is held in almost a spirit of veneration in the hearts of Californians. There is something so distinctive in the form of the Live Oak, and something so attractive in the contour of its branches, which distinguishes it from all other members of the same genus and from unrelated types. The rich, dense, olive-green foliage affords a wonderful contrast to the golden turf beneath in Summer, while the eye is bewildered by the intricate and graceful curving of the trunk and branches. The Live Oak loves to nestle in glens and ravines, but feels somewhat out of place in broad, open valleys. It forms a delightful setting for a home, and is often used as a basis for laying out estates, especially in hilly regions of cities and towns.

Native trees and shrubs which will harmonize with the Live Oak are: the California Bay Laurel, the California Cherry, the Catalina Cherry, the Madrone, Manzanita, the Toyon or Christmas Berry with its crimson berries, the Catalina Ironwood, and the Santa Barbara or Matilija Poppy. Some of these are often found growing with the Live Oak.

The Redwood, too, a species of *Sequoia*, possesses certain characteristics which distinguish it from all other trees. Going through a redwood forest one experiences a sort of ethereal feeling as a shaft of light pierces through the delicate, arabesque-like tracery of leaves and branches, and break into myriads of blotches of light and shade. Its near relative, the California Big Tree is also distinctive.

What constitutes the California garden as distinguished from the Eastern type of garden? There is a distinct charm about the old New England garden, full of trim little paths laid out in regular fashion, seats, trellises, arches and arbors in set places, garden plots filled with sweet-scented, old-fashioned flowers which is not difficult



A bit of characteristic California scenery.

to feel. So is the beauty of the formal garden felt, so prevalent in certain parts of the East.

It is freedom from conventionality, rather than freedom from restraint, that characterizes all true Californians. It is this spirit which is reflected in California gardens. In the extreme East the spirit which prevails is that of "you must do this and you mustn't do that; observe all of the proprieties; do not deviate an inch from the accepted line of traditional conduct." Here in the West we are tempted to go to the other extreme—to break away entirely from established precedent and custom. But there is an obvious danger in this attitude, which must be guarded against in matters of gardening.

In California, therefore, the trend is towards a distinct informality in most of the plantings. And yet, even in informality there must be some semblance of unity of purpose and conception—in fact, it is really much more difficult to form an informal or naturalistic garden, than it

is to construct a formal garden. Sometimes the wisest procedure seems to be to strike a happy medium between the two—to include the best features of the formal garden, giving them an intimate setting. In other words, we remove the austerity of too formal a treatment, by adding a touch here and there of informality.

It is conceivable that California will some day develop a style of landscape gardening peculiarly her own. In the California garden will be revealed the spirit of the California landscape, coupled with an expression of the feelings and sentiment of the true Californian. Ideas borrowed from styles of gardening in vogue in other regions, which can be utilized to advantage, will be incorporated in the garden, but certain features of the garden will breathe the atmosphere of California.

The illustration on the front cover shows the century-old live oaks (*Quercus agrifolia*) on the campus of the University of California, Berkeley.

Bark and Its Uses

WILLARD N. CLUTE

ALL plants, save the very simplest, are protected from the external world by a resistant covering commonly known as bark. This might be truthfully described as the plant's skin for like the skin of animals, it is renewed from a softer underlying tissue and is constantly thrown off or worn away from the surface. In both animals and plants the outermost layer is known as the epidermis, but the deeper layers, especially in plants, have different names.

Bark is commonly formed by two different layers of growing cells known as cambium cells. The activities of the outer layer produce the corky bark while a deeper layer gives rise to the other tissues associated with the cork cells. This latter layer has a second important function for, in addition to building up the bark, it annually adds a new layer to the woody cylinder. The patterns of the bark, which alone are often sufficient to identify the species, are due to peculiarities in the growth of the cork cambium, but it is the ever-increasing pressure from the growing cylinder of wood that causes the bark to crack along the lines marked out by the cork cambium. Thus is produced the papery bark of the birch, the splintery bark of the hickory, the flaky bark of the sycamore and the furrowed bark of walnut and oak.

In most woody plants the layer of cork is spread rather uniformly over the stem, but in the sweet gum and in some species of the elm and *cuonymus*, certain regions of the cork cambium are more active than others and this results in a number of cork ridges or wings running lengthwise of the stem. In the cork oak, the corky bark is so well developed that it forms a layer several inches thick. If this is carefully removed, the cork cambium will produce a new layer of cork in a few seasons. All our bottle corks are derived from this source. The dark streaks seen in the corks are openings through which the living cells transpire. On young twigs these openings appear as tiny specks or lenticels.

The cork cells not only protect the plant from mechanical injury and the attacks of fungi, but owing to the minute air spaces they contain, they also modify the effects of sudden changes of temperature which are so trying to plants. The inner layers of bark are composed of strong fibers, known as phloem or bast. From these fibers is sprung most of the thread, twine and cordage

used for a multitude of purposes in the commercial world.

It is well known that if a ring of bark is removed from a stem the stem dies, but this is not due, as so many assume, to shutting off the water supply of the plant. It is true that there are a series of small tubes in the bark, but these do not carry water and food materials upward. Instead they carry the food elaborated in the leaves to all parts of the plant. Removing a ring of bark from the stem, therefore, stops the supply of food to the roots and the plant slowly starves to death. That food is carried downward in the bark is apparent when one notices how greatly the stem is swelled above any constriction about it. In plants like the grape where the fruiting branches are renewed annually, the branches are sometimes ringed to prevent the escape of the manufactured food which thus remains to increase the size of the fruit.

Although we commonly give more thought to the wood of plants than to the bark, the latter is of such great importance that it may be questioned which is the more valuable. The bark seems to be a favorite place for storing elaborated materials by the plant. In many cases these are in the nature of waste products so far as vegetation is concerned, but they find a wide use in human economy. From the milky juice or latex in the bark of numerous tropical trees and vines most of the rubber and gutta-percha is obtained. A still larger number in all parts of the world yield the tannins so useful in turning hides into leather. Fixed oils are rarely obtained from barks, but there is a long list of essential oils derived from this tissue, familiar instances of which are the oils of cinnamon, sassafras and birch. A large number of the alkaloids and related substances used in medicine are also taken from barks, quinine, is possibly the best known of these substances. In addition there are produced from barks, numerous dyes, gums, varnishes and other substances that are found useful wherever the arts of man flourish.

Think about yourselves, about what *you* want, what *you* like, what respect people ought to pay to *you*, what people think of *you*, and then to you nothing will be pure. May God keep our hearts pure from that selfishness which is the root of all sin!—Charles Kingsley.

Opuntia—Indian Fig

RICHARD ROTHE

OF the hardy *Cacti* known to endure the severest of our Middle Atlantic Winters by far the most are natives of our country. Of the genus *Opuntia* the species: *arenaria*, *camanchica*, *fragilis*, *mesacantha*, *phacantha* and *polyacantha* are all well known to botanists and collectors. Abounding within the mountain regions of Central Colorado they are reported nestling along dry sunny slopes of upward of 5,000 feet altitude noted for minimum temperatures as low as 20 degrees below zero.

Under cultivation they require an open sunny exposure in well drained or outright dry ground. According to popular belief *Opuntias*—or, as they are also called, prickly pears—grow among rocks in the poorest soil imaginable. In reality, however, they need a fair amount and depth of decidedly fertile soil containing humus of a



Opuntia Rafinesquii.

coarse texture for rapid normal growth and free flowering.

Hardy *Opuntias* prove valuable subjects for dry-walls facing south. In rockgarden arrangements we reserve arid slopes facing south and southwest for plantations of the hardy Indian Fig *Cacti* and subsequently enjoy their add picturesque evergreen forms and their abundance of attractive yellow flowers during the early Summer months.

Of the few species listed by the trade *Opuntia Rafinesquii* is the best known. Being a rapid grower of remarkably free flowering habit producing its large deep sulphur-yellow blossoms during June and early July plantations of adequate size add in maintaining a vivid color effect of a rockery at a time when the climax of the vernal glory is past.

All the Indian Fig *Cacti* may be easily propagated by inserting cuttings of the flat compressed branches into sand or light soil. Beware of numerous little spines at the joints when handling cuttings. Winter covering, even in Northern States, should be of a nature allowing free access of air to plantations.

SCENTED MIMULUS MOSCHATOS

Florum Amator Replies to T. A. Weston

WITNESS to the June issue of THE GARDENER'S CHRONICLE OF AMERICA, T. A. Weston's courteous criticism of our listing of *Mimulus moschatos* as a scented

plant in our article on "Sweet Scented Flowers."

It was the Roman poet Horace, if we remember correctly, who wrote: "A critic is a whetstone upon which others may sharpen their wits." Far be it from us to fail to embrace the lessons to be learned from fair-minded, intelligent criticism, or in other words to sharpen our wits upon its whetstone.

We welcome T. A. Weston's criticism for two reasons, first because it will lead us to take a strong sniff of whatever *Mimulus moschatos* plants we see hereafter, and secondly because, we have the pleasure of telling Mr. Weston where he and all other good Englishmen either this or the other side of the Atlantic, and Americans, too, apparently can buy seed of the *Scented Mimulus moschatos*. In that comprehensive and reliable, we think, catalog of Watkins & Simpson, Ltd., London, 1922, page 55, we read under seeds:

"*Mimulus moschatos* (musk)
Mimulus moschatos
True Sweet Scented."

All other English and American catalogs at hand say simply *Mimulus moschatos* (Musk), but in *Gray's New Manual of Botany* revised by Robinson & Fernald we read on page 724 the following description of this plant: "*Mimulus moschatos*, Musk Flower, Villous and Viscid, musk-scented, damp soil, Newfoundland to N. Y., E. Pa., Ont., and Mich., abundant in Rocky Mountains whence perhaps introduced."

Perhaps T. A. Weston has not been this side of the "Pond" long enough, or even if so, has been too busy a man with his pen and his beloved New Jersey garden to smell of such musk plants—no rumout British type—as Prof. Gray describes.

Mr. Weston's criticism brings into our mind two questions, which I doubt not will interest him as well as *Florum Amator*, namely: Does a scented plant, whether the scent is pleasant or disagreeable become in one year or a hundred years or a thousand, scentless? Secondly—Is it possible there is now and always has been a *Mimulus moschatos* entirely devoid of scent, and a *Mimulus moschatos odorata* which is now, and ever has been scented?

T. A. WESTON ON BUDDED VERSUS OWN ROOT ROSES

JUST a note *re* those roses. Arthur Smith talks of grafted plants, and Mr. Craig, like myself, is probably talking of budded plants. There is a vast deal of difference between grafting and budding. The bulk of the roses raised in Europe are field-budded; only those growers who have glass and who want to make the most of novelties do inside grafting, unless one excepts the French, who do a big lot of dormant grafting during the Winter, and plant the stocks in the Spring.

Grafts do not average so good a union as buds. Budding is the practice adopted in California and New Jersey by those firms who are catering to the demand for good field-grown roses. Deep planting of budded roses does not necessarily mean rooting above the union. I have always made it a practice to lift dwarf roses every two or three years, but rarely have I found roots above the bud.

I might add that last Winter my H. T.'s had no protection whatever, not even earthed up; only one died and that because it was walked upon when under snow.

Better Sweet Peas

CHARLES ELLIOTT

IT is my intention to confine my remarks to up-to-date exhibition culture as I believe that, whether a person wishes to exhibit or to have flowers for table decoration, the highest form of culture gives the best returns. I contend that it is better to have a few good long-stemmed flowers than a wheelbarrow full of poor, short-stemmed stuff.

I am sometimes asked what is the best soil to grow sweet peas in. If I could answer, it would not benefit anyone, but I will try in as brief a space as possible to tell you how to prepare the soil you have, in order to grow sweet peas to perfection.

To grow sweet peas, or for that matter any other crop, good drainage must be secured and I believe most of our gardens are improved by tile draining or some other form of drainage that will carry surplus water away freely.

The site on which you wish to plant should be chosen the previous Fall and spading operations commenced as early as possible. If you have a light soil with good drainage, spade the soil not less than two feet, three will do better, and work into the soil plenty of well-decayed manure, cow manure may be the best, but horse or pig manure will do very well, providing it is well rotted, and in this case you would do well to mix the manure through the soil so that when the roots descend they will find a steady form of diet, and are not gorging one week and starving the next. Always be careful not to have fresh manure nearer the surface than ten inches, and if the soil is not too wet tramp it back into place as the work proceeds. Right here I want to emphasize the value of firm soil, for the firmer the soil, other things being equal, the better the results. Sweet peas cannot be grown to perfection in a loose soil. A good dusting of bonemeal may be added, and the ground should be left rough at the surface.

A heavy clay, as many of us have to contend with, is a difficult proposition, but it will grow fine peas if handled right. It calls for more labor and good judgment, but I believe we like it better in the end.

We have a very heavy soil at Park Ridge and prepare it in this manner: As early as possible we haul onto the site a good dressing of rotten manure and gather all we possibly can in the way of partly decayed leaves and rough garden refuse, and commence to thoroughly trench the whole breadth of the plot which we intend to plant to sweet peas. At the bottom of the trench we place a thick layer of coarse material, such as the decayed leaves, or refuse of some kind, and then, after putting on a layer of soil, spread in a layer of manure, taking care to keep the manure well down, and then some good soil on top, in which to plant when the time comes. We add a good dose of bone, but I do not believe in overdoing the manuring as it may easily cause trouble, and neither do I believe in digging a trench two or three feet wide and as many deep and filling it up with rich earth and manure. I admit good peas are sometimes grown that way, but it is inviting defeat, for such a trench provides a catchpit for a heavy downpour of rain in the hot months, and when this mass gets saturated, it results in the failure of a good crop of sweet peas. Such a trench is also continually sinking during the Summer, the cracks from the sides breaking the feeding roots and causing the whole thing to collapse. This work of preparing the ground should be done early in the Fall in order to give the soil a good chance to become settled before Winter. If any old mortar rubbish is to be had, we work this in the ground and spread some

on top, but failing this we give a sprinkling of some form of lime, and before the ground freezes, if it is not too wet, we arrange the surface into ridges resembling small potato ridges and leave them that way through the Winter. Any time during the Winter months that we have any light material to dispose of, it is spread over the ridges. These ridges break down in fine shape in Spring, and about the end of March we usually have an opportunity to work over the surface, but before doing so, we give the ground a good dusting of superphosphate and a preparation known as Lime Fertile. These are worked into the surface, which is left level and *not* raked. Care must be exercised when the ground is finally finished off not to have a low spot or basin left, otherwise this will prove a catch-basin in times of rain and the rich soil will sour and cause the plants to sicken.

Selection of varieties and raising plants. Generally speaking, growers buy too many varieties and not enough of one variety to assure success. I have noticed that the most successful exhibitors order a large quantity of not too many varieties and stake all on having plenty of plants of each. The exhibitors also generally secure enough plants so that they can select the best for their purpose, and discard the poorest. The logic of this should be plain to everyone. I believe that fifteen to eighteen proved varieties are sufficient for a grower to meet all demands, and to these varieties may be added the cream of the novelties.

There are two methods in common practice regarding sowing seeds and raising plants: Sowing in the Fall, and sowing in the early Spring, in both cases under glass. Fall-sown plants are Wintered in cold frames, the early Spring sowing is raised in heated structures.

For many seasons we have been raising a large number of varieties, some of them choice seedlings worth their weight in gold, and we have found that the method outlined as follows gives the best results in germination and at least as good results in sturdy plants:

We take ordinary flats and fill with fairly good soil to the level, with a good dash of sand, and press this well along the edges with the fingers. The surface is then leveled and the seeds placed an inch or two apart over it. If we have a few seeds of some varieties, we draw a drill with finger tip and sow in it, and when sown cover the seeds well with light soil. By covering I do not mean a half inch, but that the seeds are hidden, which is enough. We then press the whole down very firmly, putting all our weight on the board used for this purpose. The flats are then piled one on the other in a corner of the greenhouse away from the sun and heat of the pipes. The soil should be of about the same degree of moisture as used for potting; wet enough to form a loose ball, dry enough to break apart when touched. Under good management the flats do not require water until after germination commences. After a few days the flats in the pile are looked over, the top flat being placed at the bottom and water being given if there is lack of moisture. Sowing in regular seed pans answers the same purpose, but the center of a three-inch pot is about the worst place I know of to place a sweet pea seed, and I know seedsmen who are looking, club in hand, for the man who discovered the sowing-in-sand idea.

It is generally conceded that the white-seeded varieties give poor results, but I myself find no difficulty, the most difficult varieties being the pink and rose colored. They germinate slowly, but the difficulty is well overcome by chipping a small piece of the hard skin in order to allow

the moisture access. I have had men tell me that life is too short in which to do such things, but I am willing to demonstrate to anyone that these seeds can be chipped at the rate of more than 500 an hour, and I could recite many instances in which it has paid well to take the trouble.

Fall sowing is done around October 15, and when the seedlings are well up the flats are transferred to a cold frame. Spring sowing is done from January 15 to February 15 and the grower must be guided regarding the time, in accordance to the accommodation he has to take care of the plants. It is poor policy to sow early and to have to keep the plants for weeks in a high temperature, but if a cool house is available for the plants, an early sowing gives the best results. The plants are potted on into pots or transplanted into deep flats of good soil, kept near the glass, and given such treatment as will produce sturdy stock.

I want to especially recommend the Fall sowing, and especially to those who have no glass at their disposal. Anyone with a few old sashes, or new ones for that matter, can have as good, and in some cases better, flowers than his neighbor with glass.

Seeds are sown after the middle of October as before described and the plants are given as much air as possible in the Fall months in order to make them strong and sturdy, and when Winter approaches they are placed in a good pit 12 inches below the glass and boards. Straw or leaves should be handy for their protection. They should not be left to become badly frozen, but should be afforded ventilation on all possible occasions, taking care that they are not exposed to a cold wind or to bright sunshine if they have been frozen. Some time during February the plants are transplanted into fresh soil, either in pots or deep flats. I mention the flats because as good or better plants can be raised in flats. The sweet pea is much more adaptable to different methods than many experts would have us believe, and the finest plants and flowers I ever had were raised just as I have described, and anyone possessing the "go ahead" enough to use this method will be well repaid.

If pots are used, the plants usually need a four-inch pot toward Spring, as they grow like weeds when the weather becomes warm, and consequently they must be given all the air and light possible in mild weather. The sash should be removed when the weather permits in order to keep the plants sturdy.

Spring-sown plants must also be hardened off in the same manner before being planted out.

Some kind of support is usually needed for the plants while in pots or flats, and for large plants in pots and flats twigs are the best to use, but for small pots we use a wire coil.

Planting out takes place the middle of April or as early afterwards as weather and soil conditions permit. We always have a double row, or, in other words, two rows fifteen to eighteen inches apart, with an intervening space of not less than six feet from the next double row. We try to have the trellis in place before planting if possible. We also try to have on hand some dry material from the compost pile or old hotbed in order to get the surface of the ground in condition to plant.

The plants are planted six, nine, twelve or eighteen inches apart in the row, according to the vigor of the variety or the strength of the plants. The plants from pots should have the roots loosened around the ball, and a hole large enough to have the roots spread out must be made. In planting from flats we first loosen the whole mass by jarring the end of the flat on the ground, then pry off one side and slide the whole out on the ground. The plants are then separated, an effort being made to

preserve the long roots rather than to try to retain the soil on them. A very good plan is to open a small trench, in the manner that some gardeners plant potatoes, arranging the plants along this trench, spreading out the roots, about half filling the trench with soil, trampling firm, giving a little water, and then raking the trench full.

It is a good plan to provide a wide board to walk on during the planting operation, and to stand the board on edge along the side of the row for a few days to break the wind. At this time the plants must have some support, otherwise the wind will twirl them around on the ground and they will suffer considerably.

The finest exhibition flowers are grown on what is called the cordon system, and the best supports to use in this instance are cane stakes six to eight feet long. I will now try to explain the way we arrange these stakes to the best advantage. A long stout post is placed at each end of the row, securely braced, and two No. 9 wires are run, five feet above the ground, from post to post and drawn tight and held 10 or 12 inches apart by means of short pieces of 1x2; the stakes are then inserted in the soil a few inches deep, and six inches apart, along each side of the double row. They are then tied to the overhead wire six inches apart. At the bottom of the stakes the rows are 18 inches apart, but the overhead wires, being only 10 or 12 inches, cause the stakes when tied to it to lean in at the top from either side. The advantages of this arrangement I will enumerate to you.

From the beginning a single stem is taken up each stake and, because each stake leans inwardly, the growths naturally come to the outside of the trellis, and thus it is easier to tie the growths to the stakes, and they present a much better appearance as the outside of the stakes are covered. But what is still more advantageous is the fact that the flower stems when they appear, instead of following the course of the vine, stand directly up and out away from the vines, thus having a better chance to develop, and there is less chance for the stems to become damaged through whipping against the trellis. Another thing, it is a very easy matter to gather the flower stems. You all remember how the best flowers always get entangled in the vines when they are grown on any other trellis. Some growers use two by four posts and nail 1x2 overhead to which the stakes are tied, but I think the wires look better, and it is also more safe with the cordon system. The advantage of having the stakes so wide apart at the base is that a man can take a hoe or hand cultivator and, by walking backwards, cultivate the space between the stakes with ease.

Some gardeners grow their plants on single stems, others allow two stems to each plant. The vigor of each particular variety is the best guide. The strongest leaders are selected and the remainder cut away, and, as the growth proceeds, all the laterals, and for that matter, all the tendrils are pinched off. Tendrils are not needed with the cordon system; they have a bad habit of reaching over and taking a strangle hold on the head of a near shoot or flower stem. Some gardeners complain that it is not natural to grow sweet peas in this way; quite so, neither is it natural to grow mums on one stem and on crown buds, or to trellis tomatoes, or to thin a bunch of grapes, but all are better for not being grown quite naturally. So it is with sweet peas. Apart from thinning and tying, all that is left to be done during the early stages is regular cultivation. If the plants make a good start, nothing else is required. If, for some unexplained reason, the plants do not make good headway, a light dose of nitrate of soda may be given, but keep off the stimulants unless it is necessary.

One thing I should mention regarding the removal of laterals, and that is, do not disbud too closely. Some va-

rieties have a mean habit of going blind when in a high state of cultivation, and if the laterals are all removed, there is an end of the plant. This often happens after a hot spell.

When the plants are well in flower, it is good to start feeding, the condition of the plants being the best guide. The first sign of smaller leaf or flower is the feeding sign. Liquid made from cow or sheep manure and applied in a weak state is very beneficial. I apply it by making a shallow trench six inches away from the plants and one along the center of the double row. This trench is filled with the solution and when it has disappeared, the earth is returned to its place. Once a week for an application is often enough at the beginning, but if the vines are growing fast, twice a week is permissible after the feeding has become regular. The diet may be changed to advantage, using some good standard fertilizer, such as Clay's, Mackereth's, etc. A good drink of superphosphate is always of benefit, but do not let your enthusiasm get the better of you in the way of feeding, especially if the vines are not over strong. Good strong, thrifty vines can stand a lot of feeding in favorable weather, providing the same is applied with common sense.

When the hot weather arrives, a mulch of coarse material is very beneficial. Decayed leaves or very old manure answers the purpose; at any rate, the mulch must be some medium that will not mat down and close the pores of the soil and cut off the air.

Every catalog describes the latest varieties of sweet peas as all producing four flowers to a stem, sometimes more. Sometimes they do; sometimes they don't. There are times when well-grown plants are full of four-flowered sprays, and often five and six, and there are other times when the same plants are full of three-flowered sprays and often two. The cause of this is that the plants have been overtaxed from bearing flowers or intense heat. An exhibitor who finds himself in the predicament of having only two or three flowers on a stem on the morning of the exhibition would be very fortunate if he gained a place in the first three. This condition can be overcome partly in normal weather by careful feeding, and partly by the method I shall now explain.

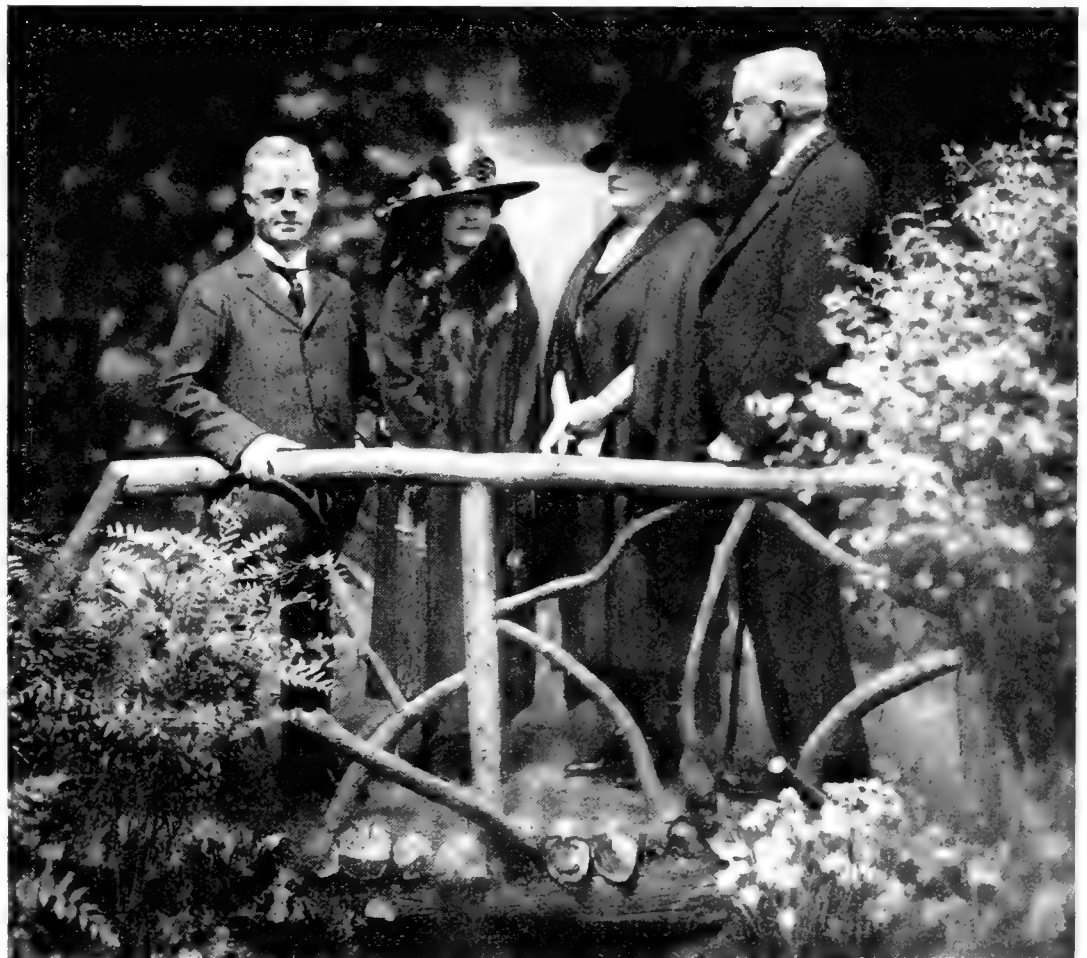
Some ten or fourteen days before we require a lot of good flowers, we remove from the vines all the flower stems that are more than an inch long. If the flower stems that appear next grow so rapidly that they will be over before the day of the show we also

remove these, the object being, of course, to have a new crop of fresh flowers just on time. In very warm weather a flower stem will advance from one inch long to full flower in five days. In cool weather they take twice as long. This is a trick that calls for good judgment founded on keen observation.

The worst enemies that we have to contend with are aphid and mildew. At Park Ridge the sparrows keep our vines quite free from the aphid, and we allow them to take a few flower buds in return for their service. If you must kill off the sparrows, then you must also kill off the aphid, or the aphid will kill the vines. A good nicotine preparation is the best aphid killer.

Mildew often follows a bad change in temperature, and at its first appearance, I get a quart of ammonia (22% strength) and one ounce of carbonate copper. When the copper is dissolved, we dilute nine gallons and spray thoroughly. This solution is also good for culinary peas.

Flowers for exhibition should be cut when they are dry. If it is necessary to cut while wet, shake the moisture off and arrange loosely in vases in a cool, airy room. The white, picotee and pale pinks are best if cut twenty-four hours before the time of showing, but the reds, purples and deep pinks are most fresh when cut on the morning of the show and stood a few hours in water. In arranging a stand, always avoid strong contrasts in colors, and place the taller flowers to the rear. A vase or two of the dark varieties in purple and maroon always add to the appearance of an exhibit, as these colors seem to add weight, especially if they are placed at the back corners.



Standing on the rustic bridge, in front of the waterfalls at the Great Exhibition of Ferns and Wild Flowers, held during May at Horticultural Hall, Boston, are (left to right) Mr. A. C. Burrage, Pres. Mass. Horticultural Society; Mrs. Richard Saltonstall, Mrs. Bayard Thayer and Prof. C. S. Sargent, of the Arnold Arboretum.

Hardy Perennials

By ARTHUR SMITH

IN a gardening book published about half a century ago it was stated that: "Deciduous shrubs are beyond all question the most important element in planting grounds, especially small ones."

At that period there were comparatively few species of flowering shrubs in use, and outside these, flower gardening was almost entirely confined to the bedding-out system, lawns being cut up into beds of all sizes and shapes, and gardening with hardy plants was practically unknown. While since then a great change for the better has generally taken place it is still possible to see those deplorable excrescences upon the landscape in the form of beds upon a lawn filled with tropical and sub-tropical rubbish for two or three months, and the rest of the year nothing but bare earth.

There is nothing artistic in a garden cut up into geometrical beds filled with bedding plants in which the natural beauties of the flowers are lowered to the level of being used in mere color design without any reference to the habits and idiosyncrasies of the plants themselves; clipping—especially in the case of carpet bedding—being always resorted to for the purpose of keeping the pattern geometrical. No true artist who is a lover of flowers and who is capable of seeing the beauty that exists in Nature would attempt to desecrate a garden or park with this tracery work which is degrading to the true art of landscape gardening. William Morris, in his *Hopes and Fears for Art*, wrote thus in connection with this style: "Another thing also much too commonly seen is an aberration of the human mind which otherwise I should have been ashamed to warn you. It is technically known as 'carpet-bedding.' Need I explain further? I blush with shame at the thought. This style of decoration seems to have been introduced and kept up as a manifestation of a gorgeous and highly elaborated style of gardening, a style which suggests the thought of enormous cost and labor to produce nothing but vulgar ostentation."

To the majority of people the great incentive in causing them to have a country home is to have a house surrounded by a garden and a place for rest and recuperation. But what is there restful to the eye or brain in a garden laid out in a stiff, formal manner, containing nothing but harsh glaring colors? What does a garden amount to which depends more or less entirely upon bedding plants? In the first place the lawn is spoiled by having beds cut into it; then it is unsafe to bed out before the end of May or early in June; July is well advanced before there is much effect and before September is finished frost generally does away with it all. So barely three months of flowers, where there are flowers at all, is the total which is obtained for the trouble and expense, and during the whole of that short period there is no more change in the appearance of the beds than in the patterns of the floor coverings of the house and they are both similarly interesting. The effects produced by carpet bedding and the bedding out system generally could be just as well obtained by artificial flowers, or by painting the colors upon wood and laying it upon the grass. If there is one thing more than another which has marred much of the ornamental surroundings of country homes it is this system with its comparatively enormous annual expenditure producing only ephemeral results and leaving the ground with nothing but beds of bare earth for the rest of the year.

But do the majority of people using the bedding out

system really prefer it? The present trend of ideas points somewhat to the contrary. The change in viewpoint has been long and slow in coming. For this there have been many reasons. In the past there have been too many gardeners who appear to have known of nothing but bedding plants wherewith to create a floral display, and in many sections today there is little or nothing else seen. The movement towards gardening with hardy plants has come more from owners than from professional gardeners. Estate owners have for years been complaining of the difficulty in obtaining men capable of planting and maintaining a garden of herbaceous perennials. Too many look upon greenhouse plants as the only ones worth much trouble and have been in the habit of despising hardy perennials, stigmatizing them as weeds.

Another reason why flower gardening with hardy perennials has been for so long conspicuous by its absence is due to the fact that so many landscape architects possess such a meager knowledge of them that they are apparently unable to grasp the many ways in which these subjects can be used. Plantings of trees and shrubs are arranged for by the acre, while at the same time herbaceous perennials are upon the smallest possible scale or are not provided for at all in their landscape plans.

In this connection, as well as in others, the object lessons seen in public parks are the reverse of what they should be. The introduction of politics into appointments for almost every public office is the more ridiculous when looked at from the point of view taken by a lover of natural beauty; ridiculousness which becomes a glaring farce when some appointments to the office of park superintendents are considered. Many of these political appointees look upon their position as a means of making as much money as possible before the other party comes into power; they have no sympathy or knowledge of their work and none of that love of it for its own sake which all true gardeners possess.

Public parks should be places where the people can see the best and highest embodiment of garden art, and the most advanced methods of plant culture. Unfortunately, however, it is too often the case that the only lessons to be learned is how not to do things.

In those instances where herbaceous perennials are used in public gardens the plantings are generally insignificant, upon too small a scale and entirely out of proportion with other things. The use of merely a dozen or so species of perennials in some out of the way corner when there are acres of trees, shrubs and huge beds of gaudy bedding plants is not calculated to cause people to realize the wide possibilities of gardening with hardy plants. Nature teaches differently by its masses of Asters, Golden Rod, etc., etc., which every one having the opportunity of seeing is delighted with. Why not create such-like features in city parks, and bring natural beauties into the heart of densely populated districts, the inhabitants of which rarely see the real country?

Of course dealing with these hardy perennials requires a much wider horticultural knowledge and experience than that necessary for handling ordinary ephemeral bedding plants.

The movement in the direction of using hardy plants and less glass which has been gradually increasing in intensity, has undoubtedly come to stay; for the reason that it is more economical when compared with results; more attractive the year through to all garden lovers and en-

thusiasts, and it affords greater space for greater variety.

This movement has during the past few years been greatly accelerated by the formation of Women's Garden Clubs, and there is every reason for believing that owners of gardens, large and small, are gradually becoming better educated in garden matters—which is what Garden Clubs presumably are for—and the more a person's education is extended along this line the more artistic and interesting will gardening with hardy plants appear.

The production of natural effects, refined by Art, should always be striven for in planning home surroundings. The characters of hardy perennials causes them to be the only plants suited to the natural style of flower gardening, however small or large a garden may be.

Species can be found adapted to every situation in which a plant of any kind will grow at all. Bare ground under trees where grass fails; a dry sunny bank; a swamp or bog; woodland walks; in fact any situation may be made permanently beautiful by them. The situation from which these plants are barred—and any others—is in beds cut in the lawn.

There is always a freshness in connection with perennials. A walk about a garden in which they have been planted invariably reveals something new, some flower which was not there a few days before; the monotonous feeling inseparable from bedding plants is out of the question, and during the whole year there is a never ending interest which tends to invigorate the brain and drive away *ennui*.

The charm of association can exist in a garden of hardy flowers, and one can there form lasting friendships such as never can exist in a garden devoted to ephemeral bedding plants. If a hardy garden is given intelligent appreciation it will soon grow to have almost a human atmosphere. We meet old friends each year with added interest. How we watch for the blooming of some favorite! If it is late in appearing, how frequently we visit the spot day after day, until at last it arrives in all its fresh new-born beauty, but still the same old friend; not like the human friendships made upon a vacation tour to be forgotten before we reach home, but one which we can depend upon to visit and to cheer us with periodical faithfulness, and as "year after year the same dear things lift up the same fair faces," we would like to become perennial ourselves in order to the longer enjoy our hardy flower friends.

It must not be forgotten that *all* the charm and beauty of perennials, as well as with other permanent features of a garden, can not be obtained the first season after planting; patience must be exercised. The lack of patience may answer the question as to why the best features of the old-time gardens have been so lacking in America where there are so many homes without gardens in the real sense of the word. Lawns with a number of round, square, or other shaped beds dotted about them bedded out each Summer and open to the world in all their ugliness, are not gardens. As previously stated, the word garden means enclosed space, and it is the feeling of being shut in with Nature in all its beauty—grass, trees, flowers and sky—that causes the old-time garden to have its perennial charm. A garden should be nothing more—a real garden cannot be less—than an outdoor room of the house, sweet with memories, and associated with the hopes, fears and secrets of our lives.

Many of the old gardens were walled in, and the same idea is used in connection with the sunken garden, and provided it can be properly carried out is a garden feature worthy of more extended use.

A garden of this character can sometimes be made to form a special feature of country home surroundings.

It is not of course always the case that the existing conditions will permit this to be accomplished. Where it can be the following points—frequently ignored—are imperative. It should be so placed that one can step from the house or porch directly into it. It should be rectangular in outline and being walled in, it is practically part of the building. It must on no account form part of the general landscape, that is, the sunken garden must not be seen from any part of the place excepting from the side of the house on which it abuts. The excavated earth should be spread to a natural contour on the three sides and planted with shrubs and evergreens in harmony with, and in connection with, the general lay-out of the grounds. This planting will not only mask any portion of the wall appearing above the surface but will also act as a background to the inside picture. The beds inside should be rectangular, not, as is sometimes seen, radiating to a common center. Where the climate is suitable, the beds may be edged with dwarf Box, this should be kept to a height of about five inches. It goes without saying that hardy perennials are the only things admissible for planting the beds, as old-fashioned flowers are the only plants suitable for an old-fashioned garden.

In some cases where the outlines of these old-fashioned gardens have been reproduced, the gardens have been spoiled by being devoted to carpet bedding and to other such like ephemeral features. But where those enclosed flower gardens have been laid out upon a generous scale, properly set out with hardy plants, the effect is such that no one with the smallest amount of artistic perception would ever wish for the other method.

These walled-in gardens, being laid out upon rectangular lines, are by some termed formal; but the planting is absolutely informal, and it is only where the plants are rigidly arranged in formal designs that the term formal is strictly applicable. The straight lines of this garden are, however, so far unnatural, and it is this fact which renders it absolutely necessary that these special gardens should not form part of the landscape.

It is astonishing how many calling themselves landscape architects appear to be incapable of grasping this fundamental principle. Not long ago I saw two plans for new estates made by a landscape firm of some repute, in which what they termed formal gardens had been designed. In each case the garden was planned to be placed at some distance from the house, and was entirely open to the landscape. It is impossible to imagine anything more incongruous and wanting in good taste. Fortunately neither of the owners carried the plans out.

In connection with a garden of this kind a word about its walks appears necessary, because in such, one should be able to walk around it in the thinnest of shoes immediately after rain. In any case providing perfect drainage goes without saying, and from all points of view the hard red brick which is made for the purpose is the most satisfactory material to pave them with. Cement should never be considered for use in any garden walks. No doubt the most artistic walk is that paved with irregular shaped pieces of flag-stone with the interstices planted with dwarf subjects such as Thyme which emits its pleasant perfume when walked over, *Oxalis corniculata*, *Sedum acre*, and such like. Care must be taken to keep grass and other weeds from these walks, but if they entail somewhat more annual labor than those of brick, the additional old-world charm given to the garden will repay for the trouble.

The above old-fashioned garden has been alluded to because of late there has grown up a desire, on the part of those having room enough in their grounds, to possess one, and also because hardy perennials are the only plants suitable to use in it. But it must not be understood that

they cannot be planted elsewhere. On the contrary these plants lend themselves artistically to the general landscape scheme.

More often than not the use of shrubs is overdone, that is comparatively, as the quantity planted is too large in proportion to other things, and there is frequently thereby caused a general want of balance in country home surroundings as well as in public parks.

However good the selection of shrubs has been so as to obtain the longest possible flowering season from them, the majority bloom more or less early in the season, and the more northern the latitude the fewer late flowering ones there are which can be used. In any case a border of shrubs always presents a flowerless condition in some of its parts for a considerable period. Therefore the psychological position for herbaceous perennials is along the foreground of the shrubbery so as to illuminate the existence of a flowerless condition from any part during any period of the floral year: at the same time the shrubs afford the best possible background for the perennials. One would suppose that this idea would present itself to every one giving any thoughts to the subject, and especially to those who practice garden planning as a profession. It is, however, extremely rare to find this idea carried out in any landscape architect's plans.

For house decoration, no class of plants are so valuable for cut flowers as these. The artist in arranging flowers is glad when outdoor ones are available as they lack the stiffness and continual sameness of the stereotyped hot-house products.

Informal gardening with hardy plants is beyond dispute more economical in every way, especially when we take results into consideration. Not only is this the case as regards the actual amount of attention needed, but the annual cost of bedding-out plants and the work connected with them is saved. The sacrifice of the flower garden to plants which so far as the garden is concerned, perish every year, even superficially considered, appears an obscurity, without taking into account the hothouses; the propagation of plants by the thousand; the planting out at the busiest time of the year; the digging and storing in Autumn, and the care in Winter. Practically speaking there are nine months' care under glass for three months' effect out of doors in connection with bedding plants.

It would be better in every way if, so far as the flower garden is concerned, gardeners would see what can be done without the aid of the hot house. Some owners have reduced their glass with this end in view, and in one case within my own knowledge, the entire range of greenhouses was removed as the owner despaired of ever being able to get proper attention to gardening with hardy plants so long as the glass existed.

Before the advent of greenhouses our ancestors had their beautiful flower gardens, although the number of species they had to draw upon was small compared with the wealth of hardy flowers we have to our hands today, and there are still a large number of beautiful plants, native of this country, which are unknown in our gardens. For instance the native flora of our Rocky Mountain districts, especially the Western side, has been practically untouched. Therefore gardening with hardy plants presents unlimited possibilities without going to the trouble and expense of handling tropical species.

The recent Hardy Flower Show at Boston must have been an eye-opener to those who have hitherto looked with contempt upon, or who have been ignorant of the unsurpassed beauty of our native plants.

A further sign of the times is seen in the fact that many flower shows now give a prominent position to classes for hardy flowers, this is especially noteworthy in the case of a locality where up to recently nothing else

was thought of but the greenhouses which has this year placed hardy flowers in the premier position.

As a rule, a man who has been "bedding-out" all his life will make a lamentable failure in planting herbaceous perennials, and a thorough knowledge of their character is necessary before one can arrange a hardy border satisfactorily. The three most important things to know about one of these plants are, the height it will attain to, period and duration of blooming, and color of its flowers.

It is a great help to make a planting plan and have the arrangement of plants first put upon paper. By this means plants can be properly grouped and the color scheme made as artistically perfect as possible. Moreover, an opportunity is thus afforded to thoroughly think the matter out, and of knowing beforehand the actual number of plants of each species which will be required.

These plants should be set out in irregularly shaped groups; circles, squares, and rows should be avoided, so as to accomplish as far as possible the effects of Nature's planting. Although the taller species should generally be placed at the back of the border, yet the groups of these should run toward the front; at the same time the dwarf kinds should run toward the back to some extent between the groups of the taller ones. By these means a broken, wavy, and pleasing surface is obtained, and naturalness and informality secured. No method of arranging these plants can possibly be worse than that which is sometimes seen, of having a row of the tallest growing species along the back; then a row of those not quite so tall, and so on down to the dwarfiest in front. One does not, of course, plant groups of dwarf species behind, and surrounded by groups of tall ones, but partially in front and partly between them. There is no harm, however, in finishing off a border, at its junction with the lawn, with an edging of quite dwarf subjects, such as *Phlox subulata*, *Sedum sieboldii*, and things of a similar character.

The number of species of herbaceous perennials is so large that it appears useless to attempt the mention of species. What to plant depends upon the conditions and one's individual taste, and gardens of hardy plants always reflect more or less the personality of the planter. The first aim should be to have a constant succession of flowers of varying forms and colors throughout the season appearing from all parts of the border. The fact that this is easily obtained is what constitutes one of the charms of gardening with hardy plants; every week, almost every day, gives a totally different impression from the days which have passed. Many of them will continue in flower for five months if not allowed to form seed, instances of the fact the more flowers which are cut the more flowers we have. Others give more than one distinct period of bloom; while others which only have one period of blooming leave a pleasing mass of foliage which rests the eye while passing from one group of flowers to another.

In connection with these kinds which only bloom once, it is possible to have two distinct species combined in one group so that it will give two distinct periods of flowers. As examples, Peonies flower rather early, and only once; if Lilies are planted among them they grow above the peony foliage and produce a beautiful effect. Another combination is that of Japan Iris and Hardy Chrysanthemums. The former flowering in June and July and the latter in the Autumn.

Another point to be considered is the size of the border and of the garden, as well as the distance of the border from the principal point of view. For instance as regards the latter, a large border with a background of shrubbery at the far side of an extensive lawn may have much bolder masses of color at a time in one place than a small border in a suburban lot. In the latter case one plant of

the scarlet Oriental Poppy would be as effective as a dozen in the other. Then in a small border plants of a strong, rampant growing nature like *Bocconia*, *Polygonum cuspidatum*, *Helianthus*, and such like, are better avoided as they would soon smother everything else near them.

The period during which a particular species is in flower and the duration of that period must be given due weight in making a selection and arrangement. Some will push their way through the snow in March, while others will bravely wave their blossoms after snow has fallen in November. Between these two extremes flowers can always be in evidence.

Bearing this in mind it is also obvious that a garden can be arranged so as to give its maximum effects at any special period: you can have a garden of Spring flowers; one devoted to species which are at their best at mid-Summer, or one containing nothing but Autumn flowering kinds. Thus, if a country house is only occupied for a month or two in the season, a selection may be made which will give the greatest possible quantity of flowers during those particular months; this is only possible, however, when the period of occupancy is the same every year. Recently, for instance, I was called in to design a hardy border for a client who did not occupy the house between the end of May until the middle of August, and who wanted as many flowers as possible during Spring and Autumn, and of course there was no trouble in giving effect to his desires.

The following extract from a news item which appeared in the *New York Sun and Herald* early this June speaks for itself:

"Vineland, N. J., May 27.—The Mothers' Garden of Remembrance here is bright with flowers for Memorial Day. So far as is known this is the only garden of its kind in America dedicated to the mothers of the soldiers and sailors in recognition of their patriotism and sacrifice. The Mothers' Garden is a little gem of the landscape gardener's art. Perennial flowers and evergreens, emblematic of the mother's everlasting love and remembrance grow within the garden. Extending from the central setting of the pool and bridge are wings of flower beds within which are planted those perennials so dear to the heart of the home loving mother. They are of many different varieties and always during the season some of them are in bloom."

ANNUAL MEETING OF AMERICAN ROSE SOCIETY

BECAUSE of the notable work done by Dr. E. M. Mills in organizing a string of Rose Societies across the State of New York, and because of the interest among amateurs in Central New York State, the Annual Meeting of The American Rose Society was this year held in Syracuse, N. Y.

The officers of the Syracuse Rose Society planned and carried out a series of events which resulted in a day which will long remain memorable to the officers of the National Society and others who were fortunate enough to enjoy this privilege.

The day began with the judging of the Syracuse Rose Show, staged in the Auditorium of the Y. M. C. A., and except that the number of exhibits were reduced after the ruinous rain storm of four days previous, this show reflected a standard mass creditable from the viewpoint of quality as well as quantity. Frederick L. Atkins of Ruthersford, N. J., and John H. Dunlop of Richmond Hill, Ont., were the judges. The Park Department staged an extensive exhibit in the non-competitive class.

H. P. Dennison extended to the invited guests a cordial welcome, responded to, on behalf of the American Rose

Society, by President Pyle, Leonard Barron, editor of the *Garden Magazine*; John T. Roberts, Lawyer, Granger and Farmer; A. L. Shepard, Secretary of the Rochester Rose Society; F. L. Atkins, and Prof. E. A. White, each in turn regaled the guests with wit and wisdom rosewise at luncheon.

Another twenty miles run brought us to the magnificent home of Mr. and Mrs. Hiscock, the former presiding judge of the court of appeals of the State of New York. Here was found a rose garden of luxurious appointment, exquisite taste and excellent culture. Complete beds of twenty roses of a kind such as La Tosca, Willomere and others.

In this notable garden was held the business meeting with the usual reports showing the treasury in a more healthy condition than for many years past, and resulting in the re-election of the former officers whose terms had expired in 1922. Robert Pyle, President; F. L. Atkins, Vice-President; John C. Wister, Secretary; Charles H. Totty, Treasurer for the ensuing year. The following Directors, whose terms expired in 1922, were re-elected for a term of three years: James Boyd, Dr. E. H. Mills, George H. Peterson.

The evening meeting was held in the Auditorium of the Y. M. C. A. and was attended by probably three hundred people and was in charge of the visiting rosarians with the floor of the Auditorium entirely devoted to the rose exhibits. The audience, after inspecting the roses, arranged themselves in the gallery and after the opening address by Dr. Mills, fifteen minute speeches were made by President Pyle, on The American Rose Society, Samuel E. Hillger, President of the Auburn Rose Society, on the Building of a Local Rose Society; Mr. F. L. Atkins, on the Use of Roses in Public places; Mr. Fred C. Wallace, of Canandaigua, N. Y., on Help for the Amateur; and Mr. J. Horace McFarland on Climbing Roses and Climbing Memberships, in which he clearly pointed out that the success of a Rose Society either local or national depends absolutely upon the activities of the members themselves.

In Auburn on June 16th, 1922, we were met by Mr. Hillger, President of the Auburn Rose Society and Mr. Adams, Secretary, and by Mr. David M. Dunning, patron of the rose, long an eminent rose grower of Auburn.

The officers of the American Rose Society were taken on a tour of Auburn beginning with the famous Prison in which have been developed separate rose gardens for the men and for the women, not to mention the greenhouses. Then to the gardens of the Auburn Theological Seminary, Dr. Stewart presiding.

We visited also the gardens surrounding the residence of the famous General MacDougal, George Pierson and Mrs. C. W. Ross. This series of visits found their culmination in the garden of David M. Dunning, whose success in growing outdoor roses has for many years made his home a Mecca for rose lovers. A specimen of Frau Karl Druschki in veritable billows of bloom with wrist sized trunk of ten feet high was only one of the outstanding varieties which included among others most prominently, Mrs. Weymyss Quinn, Glorie Chedane Guinoisseau, Maman Turbat, Lady Pirrie, Gustav Grunerwald, G. Amade Hammond, Avoca, a plant in full bloom six feet high. Cissie Easlea, one of the richest yellows, though not quite such a favorite with Mr. Dunning as is Daily Mail.

Mr. Ferrin was the next one to welcome to his home some 75 guests who came, saw and were filled with delight upon seeing the display in full bloom of some three hundred rose plants including not only climbers, the best of which was Paul's Scarlet Climber, Polyanthas, among

(Continued on page 214)

That Botanical Chap Calls Again

FLORUM AMATOR

"WELL, almost a year has passed since I was in your office. I called last year in August and I saw the editor then. We had a delightful time with each other and studied botany together. I brought plant specimens with me and played the part of teacher and he of pupil. He at first argued with us a little about taking his part, but proved a good pupil after he warmed up under instructions, and, I presume, has remembered his lesson; is he in today?"

We looked up rather reluctantly from the work before us on our desk, as we heard these words uttered at our elbow, and recognized at once "That Botanical Chap" who called on us last year. He had a large box under his arm, and we knew what was in store for us. "The editor is not in today," we answered. "What can we do for you?" "Perhaps you are the assistant editress," he said. "We are one of his assistants," we replied. "Good," said he, "you may be the chief editress some day; women are making such rapid advances in many occupations and professions."

As he diplomatically uttered this bit of flattery, he drew a chair up near our desk in response to our invitation to him to take a seat, and, placing the big box across his knees, began deliberately to untie the string which held the paper wrapping on the box, saying, as he proceeded with his work: "I have some specimens of plants here which I am going to show you. You have no doubt some knowledge of botany, the most interesting of all the natural sciences, and nearest home; not away off like astronomy. I had to gather these specimens in the rain; no balmy June this year; it has rained almost every day; Perhaps July will be sunny."

He took out of his box a plant. "This," said he, "is an ideal specimen; it has the roots, stem, leaves, flowers, and seed pods, and you are able to observe every part of the plant. You cannot always have a complete plant like this, but for botanical purposes you should always obtain as nearly an entire plant as possible; if that is not feasible on account of its large size, then gather portions representing the different parts of the plant, for example both radical and stem leaves, a section of the stem of sufficient length to show the manner of growth, another section to show the mode of inflorescence, flowers, seeds, and root. When you cannot obtain all of these, gather as many as you can. In the case of trees and shrubs, representative branches having leaves, flowers, and if possible fruit or seed pods will have to suffice. I hope you will never do such a stupid thing as many people do, namely, send a botanist a leaf or two or a single flower of a plant, and request him to give you its name. He may even from such a scanty data be able to identify the plant if he is familiar with it, but if not, he stands a small chance of learning its name through a systematic botanical analysis.

You say that you have not a working knowledge of systematic botany sufficient to enable you to analyze a flower unknown to you and so learn its name. It would be a valuable acquisition, but never mind, recall what you can of what you learned of botany in school or college, none too much, probably, and make use of it, and we will, no doubt, get along well looking these plants over together, and will enjoy the hour's study." We almost immediately concluded as he said the word "hour," but he went on to encourage us, and we became resigned to the fact that the only proved a profitable and pleasurable time we had spent with that Botanical Chap."

"We will not," said he, "attempt a strict analysis of these specimens I have brought with me, though that would be a profitable way to spend our time if we had a botanical microscope, and needles and a sharp knife and a strong natural light at our command, but we will observe some of the pronounced features of each and note the derivation of both the generic and specific name, and learn what uses the plant has, if any, and so weave a little story, as it were, about the plant, which will enable you to recall its name whenever you see it, for you, of course, know it is far easier to remember and recall a name when it is associated with other names or facts.

"This specimen, as I said before, is an ideal one, because it represents every part of this rather pretty, native yellow-flowered plant. This is *Lysimachia quadrifolia*, whose common name is Loosestrife. It was named in honor of Lysimachus, a general of Alexander the Great, and later King of Thrace. The name is composed of two Greek words, *lysis*, a loosing from, *machia*, strife. Its specific name is *quadrifolia*; Latin, *quadri*, four, and *folia*, leaves, because its leaves are arranged on its stem for the most part in whorls of four. Now look at this plant and as you look, fix in your memory whom it was named after and what the name is derived from and what each part means, and what the specific name was derived from and what it means, and you will always be able on sight to recall the name of this plant.

"This white-flowered plant, which I also pulled up entire, is also a complete specimen. The name of this plant is *Achillea millefolium*. Its common name is Yarrow or Milfoil. It was named in honor of Achilles the Greek, who fought in the Trojan War in 1184 B. C., and whom the Greek poet, Homer, immortalized in his Iliad. Achilles is said to have been the first to discover the medicinal virtues of this plant. The specific name, *millefolium*, is from the Latin *mille*, thousand, and *folium*, a leaf, the leaves of this plant being so finely dissected as to make the divisions appear almost innumerable. This gives it one of its common names, Milfoil; the other Yarrow is of doubtful derivation but is perhaps from the old English, Yare, meaning prompt, effective, perhaps referring to the medicinal virtue which Achilles discovered. Now smell of this plant and note and remember that it is strong-scented and put with it the fact that its leaves sometimes have been used for smoking. See, you and I have woven another little story around *Achillea millefolium*, which will enable us to always recall its name when we see it. Why, it is just as easy to remember the name of this plant, which we have examined, as to remember the name San Francisco, which you, perhaps, have never seen, is it not?

"This is a marsh, or sometimes aquatic plant. Aquatic plants, as you probably know, grow in the water; the name aquatic is derived from the Latin *aqua*, water. A knowledge of Latin and Greek is a great help to anyone studying the natural sciences. Note that the leaves of this plant are the shape of an Indian arrow-head. This fact gives this plant its generic botanical name, *Sagittaria*, derived from the Latin *Sagitta*, an arrow, and also its common name, Arrow-Head. Now, there is another specimen of this same plant, and here is a third. Though the leaves are of the same general arrow-head form, those of specimen number one are broad and obtuse, those of number two broad and acute, and of number three narrow. This gives this plant its specific name *variabilis*, which is

a Latin word and means, variable. The varietal name of one is *obtusca*, a Latin word meaning, obtuse; of two, *latifolia*, Latin word meaning broad-leaved; of three *angustifolia*, a Latin word meaning narrow-leaved. Now hereafter when in your country walks you see this plant you certainly will easily recall its name, as you note the form of its leaves, and how plants near each other vary in foliage, and say this is *Sagittaria variabilis*.

"This plant is a true aquatic, but always grows in shallow water. I had to wade to gather this specimen and I had to reach down to the bottom to obtain this piece of creeping rootstock from which the heart-shaped leaves and the one-leaved stem of this plant spring. This is the only specimen we have with us which grows up from a subterranean stem, which is called a rhizome, or rootstock. Note how roots put forth from the nodes of this rhizome, but the leaves and flower stem from its apex. Other commonly seen plants which spring up from rootstocks are *Acorus calamus*, Sweet Flag, and *Iris versicolor*, Flower-De-Luce. The violet-blue flowers of this plant have wilted already; that is because they are ephemeral, that is last only for a day, Greek again, *epi* for, *hemera* a day. Not a few plants have been named in honor of some scientist, usually a botanist. The generical name of this is *Pontederia*, named after Ponteder, a professor at Padua in the beginning of the last century, and its specific name is *cordata*, from the Latin, *cor*, heart, so called on account of its leaves, some of which you note are heart-shaped. Its common name is Pickerel-Weed, so called because that fish in hot summer days likes to lie under the shade of its leaves. When next you visit the shallow-watered cove of some pond or river look for this rather pretty aquatic, *Pontederia cordata*, the upper lobe of whose violet-blue perianth is marked with two yellow spots, a feature which you will easily note in the fresh flower."

At this point "That Botanical Chap" suddenly looked at his watch and immediately began to repack his specimens, saying as he so did: "Next time I call I will bring along with me some specimens, my botany, a botanical microscope et cetera, and we will analyze together some plants unknown to you and in this way learn their names."

THE TRAINING OF GARDENERS

THE Massachusetts Agricultural College takes pleasure in announcing a co-operative arrangement with the National Association of Gardeners whereby a special course of training for gardeners is to be established. Tentative plans for this course are set forth below, and it is expected that the first pupils under this arrangement will be admitted to Massachusetts Agricultural College with the opening of the Fall term Sept. 27, 1922.

PURPOSE

The traditional training of gardeners in Europe has been conducted through a well-established apprentice system. This training requires several years of practical work in various branches of the art. The American system, by contrast, has developed extended courses in school and college giving scientific and theoretical training, with a minimum of practical experience. In the present plan the attempt is made to combine these two systems with the hope of securing the benefits of both. The Massachusetts Agricultural College will conduct the theoretical instruction, while the National Association of Gardeners will take the responsibility of directing a prescribed apprenticeship. These two lines of work will be carefully coordinated and pupils will be held to a strict accountability in both.

This course of training is planned with the expectation

of fitting men for practical gardening, either as commercial gardeners, florists or nurserymen conducting productive business enterprises of their own, or as gardeners on estates, foremen and superintendents in parks or cemeteries, or as gardeners, florists or nurserymen in the employ of commercial establishments.

PLAN

The general plan of instruction is based upon the two-year course already in successful operation at Massachusetts Agricultural College. Students fitted to take the course will be admitted each year in September, and will remain in residence at the College for six months. During this time they will pursue general studies in fruit growing, flower growing, vegetable growing, forestry, general horticulture and such elementary subjects as may be necessary. These classes will close the last week in March and students will be sent to various commercial establishments and private estates for a Summer of practical work. Every effort will be made to see that pupils are advantageously placed so as to secure the best possible experience; and this Summer's apprenticeship will be supervised by a committee representing jointly the Massachusetts Agricultural College and the National Association of Gardeners.

At the end of the Summer students will return to the College for an additional period of nine months' study. They will thus complete this part of the course in the following June, and if successful will receive a certificate from the College. From this point they will enter upon an apprenticeship of two years, to be arranged and supervised by the National Association of Gardeners. At the end of this time they will be examined by a special board and if successful will receive the diploma of the National Association of Gardeners.

ADMISSION

Students must be 17 years of age or over at the time of admission and must have completed an elementary school course or its equivalent, and must be able to use the English language with reasonable facility. Under the plan proposed special consideration will be given to pupils coming upon the recommendation of the National Association of Gardeners.

EXPENSES

Tuition at the Massachusetts Agricultural College is free to citizens of the state. Pupils from outside the state are charged \$60 a term. This will make the tuition charge for the first year \$120 and for the second year \$180. There are small laboratory fees charged in certain courses and other fees for incidentals, but these will not average above \$10 a term. Board and room in Amherst cost from \$8 to \$12 a week.

INFORMATION

This work will all be under the co-operative management of the Massachusetts Agricultural College and the National Association of Gardeners. This association is represented for the present by the following members of its Executive Committee: Mr. Robert Cameron, Ipswich, Mass.; Mr. William N. Craig, Brookline, Mass., and Mr. M. C. Ebel, New York. The immediate direction of instruction will be in the hands of Professor Frank A. Waugh, Amherst, Mass., to whom may be addressed all correspondence regarding these matters.

"Whatever the weather may be," says he,
 "Whatever the weather may be,
 It's the song ye sing, and the smiles ye wear,
 That's a-makin' the sun shine everywhere."

JAMES WHITCOMB RILEY

Some Worth While Climbers

BERTHA BERBERT HAMMOND

THE magic touch of a fairy wand could scarcely do more to transform a commonplace building, porch or other object than the graceful festoons of a luxuriant, well chosen vine. Nature is prodigal in her use of vines and drapes them around trees and shrubs and over stones and fences in a wonderfully effective manner, making beauty spots of places that would otherwise mar the landscape. Well may we copy this peculiarity in Nature and by making free use of vines add to the beauty and comfort of our surroundings in a natural and simple manner. There is something very inviting and cozy on a porch that is screened, shaded and cooled by some ornamental climber and the humblest of dwellings appears charming and home-like when beautified by an attractive vine.

There are a large number of handsome vines, some are suitable for the purpose of growing on buildings and others are at their best when grown on lower structures such as trellis, pergola or fence. Some are hardy and others are easily grown from seed to maturity in one season. With such a wide range of choice, care should be exercised in selecting vines that will prove the most satisfactory in the location and for the purpose that they are desired.

The Boston or Japan ivy (*Ampelopsis verticillata*) a hardy, rapid grower which clings to stone, brick and wood with a tenacious hold, is one of the best of climbers, and in the Autumn its foliage, with its rich crimson and orange coloring is unsurpassed in gorgeousness. The well-known Virginia creeper (*Ampelopsis quinquefolia*) sometimes called American Ivy, also assumes a vivid autumnal coloring that is very decorative. This beautiful native vine without any special care, will in a comparatively short time beautify any object over which it may climb. The sweet scented honeysuckles are especially esteemed for use on a porch where their delicious fragrance may be fully enjoyed. They grow and bloom freely and are quite lasting and ornamental. Hall's honeysuckle (*Halliana*), a Japanese variety, is evergreen in its nature, the leaves retaining their color long after heavy frosts.

In the Spring when our Wistaria is covered with its graceful drooping clusters of lavender tinted blooms, this vine seems the most beautiful and desirable of hardy climbers, even though on account of its tendency to pry under shingles we thought it wise to train it from porch to tree instead of allowing it to climb over the roof at its own sweet will. The different varieties of clematis are attractive and popular. They are hardy, rapid in growth and profuse in bloom. *Clematis Jackmani* which bears in great profusion large flowers of a royal purple color is the most showy of its kind and the smaller-flowered *Clematis paniculata* which in the early fall becomes literally covered with a mass of white, fragrant, star-like blossoms, has won recognition as a most desirable climber. The fact that its silky seed vessels are highly ornamental, adds to its popularity. *Clematis Virginiana*, a native variety, with somewhat coarser foliage and flowers than *Clematis paniculata* is loved alike for its hardiness and wild beauty and is tenderly known in many localities as "Traveler's Joy." Sir Walter Scott alludes to the clematis as

That favored flower

That bears the name of Virgin's Bower.

Dutchman's Pipe (*Aristolochia siphon*) which attains a height of twenty to thirty feet is valuable for training

on the veranda or against the side of the house. Its broad tropical-looking leaves and odd pipe-shaped, brownish-yellow flowers make it a floral curiosity. The trumpet vine (*Bignonia*) with its brilliant flowers deserves honorable mention as one of the desirable ornamental climbers that is valuable for the covering of walls or houses.

Among the roses there are a number of charming hardy climbers that are so especially meritorious that a choice is often difficult. The crimson Rambler has probably been the most widely cultivated and may be found climbing on thousands of houses and arbors. It is a very hardy variety and though its season of bloom is none too long, it makes a brilliant display while its numerous clusters of bright flowers last. Of late its popularity has waned somewhat due to newer, finer introductions and to the return to favor of some of the old-fashioned sorts dear to the heart for sentimental reasons usually, as the modern climbing roses are for the most part superior. Take for instance the "Tausendschön" which lives up to the translation of its name "Thousand Beauties" in that it bears a multitude of clustered bouquets of attractive flowers. The pink climber Dorothy Perkins is a free-blooming, fragrant rose with lasting qualities, and Silver Moon with its large nearly double flowers with silvery white petals is a rose of considerable distinction. The double-flowered rose Source d'or is a good climber of a pleasing yellow color.

Annual vines will fulfill their mission to the utmost where a quick covering of foliage is desired, but in order to avoid keen regrets and endless grubbing it is wise to keep at a distance such persistent spreaders as the wild cucumber, common morning glory and the widely advertised Japanese Kudzu that is the modern rival of the magic vine in "Jack and the Bean Stalk." These vines certainly grow with incredible rapidity but they continue to spread and grow long after the temporary need of a vine covering is past and become a real pest to the hapless gardener.

The annual hop (*Humulus*) introduced from Japan is a rapid climber attaining in almost a month's time a height of twenty feet or more and covering veranda or arbor with a dense shade-giving foliage that seems drought and insect proof. There are a number of varieties of *Ipomoea* that are especially delicate and beautiful, the Cypress Vine (*Ipomoea quamoclit*) a semi-hardy sort with dainty ferny foliage and handsome flowers, being probably the most used.

Competent Gardeners

The comforts and products of a country home are increased by employing a competent gardener; if you want to engage one, write us.

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Seedsman and Florists

35 and 37 Cortlandt St., NEW YORK CITY

The Greenhouse, Month to Month

GEORGE F. STEWART

THE last half of July and the first part of August keep the greenhouse man on the move continually. Plants that are getting well rooted require a great amount of water and moisture to counteract the strong sunshine. Keep all the paths and under the benches well damped until far in the afternoon on all bright days. Keep all plants that are likely to burn shaded until well towards the end of September.

Watch a chance for any wet or cloudy days for fumigating as greenfly breeds fast in the hot weather. Do not wait until it is seen on the plants—use prevention rather than cure. Mealy bug and scale will need to be continually hunted for, as, when they get a hold, they are not easily driven off. Dust under the benches every now and then with air-slaked lime which helps to keep the atmosphere sweet and destroys any snails that may be about.

Any repairs that need to be made in the greenhouse should now be attended to, as many plants may be placed out doors which will allow more room to move around. See also that the heating plants and pipes are in good shape as it is no joke to have a breakdown on a frosty night in Winter.

Chrysanthemums will be well rooted in their flowering pots and must be generously fed to keep up the strength of the wood and to give a healthy color to the foliage. Syringe the leaves occasionally with soft coal soot water which lends a nice glossy appearance to the foliage, and insects prefer not to be near it. Side growths will now begin to be troublesome and should be removed as soon as they can be taken hold of. The bush plants should be held in shape by pinching up to the first of August. Some of the varieties will come blind if stopped after that date. See that they are well supported by a few stakes set around them to which is tied a piece of string, as they are easily broken down when being syringed. I find it a good plan to put in a batch of cuttings about August first of such varieties as E. D. Godfrey, Gaza, Miss Isabelle, Jane Inglis, Mrs. Buckingham, November Glow, Margaret Waite, William Lincoln. After they are rooted we put a dozen cuttings into an eight-inch pan in a fairly rich sandy loam and set them on a shelf near the glass. By Christmas they have become nice plants, about a foot high, and come in very useful for decorative work at that season. No doubt there are other varieties which would answer for that purpose but these mentioned we find most reliable; they set bud. Several others we have tried but they come blind struck at that date and, of course, are useless.

Hard wood plants will be plunged outdoors. Syringe them regularly and stimulate with Clay's fertilizer and soot water, also a little weak cow manure water until they set bud. An application once a week alternately will be sufficient to keep the foliage in good color, and will also build up strong wood.

Look well after the cyclamen plants and shift them along before they get pot bound. Use a good fibrous loam with some nice flaky oak leaves, adding a third of dried cow manure, also a little lime, and, of course, sand and charcoal to keep the compost porous. Very few in this country bother with left-over cyclamen plants nowadays, but the largest plant we have ever seen was a two-year-old plant. They are better if not dried off. A firm

crown should be selected if they are to be grown the second year. Corms that have a scattered appearance should be discarded. Secure cyclamen seeds in August for next year, being sure to get fresh seeds as old seeds take a long time to germinate. We sowed in August one year and they did not come up until the following February. Space the seeds equally in a good leafy loam and let them remain in the seed box until they have a nice little tuft of leaves.

Seeds of such annuals as are wanted for next Winter flowering are better if sown early in August. *Calendula*, *dimorphotheca*, *lupine Hartwegii*, stocks, etc., are all very useful for cutting in Winter.

Those who want nice specimens of fuchsias for next Summer should put in their cuttings about the last week in July. Select nice soft points of the shoots, about two inches long, and put them in sand. Space them well and water every bright day until they show signs of rooting. *Arabella Improved*, *Gracilis*, *Monarch*, *Rollinsoniana*, *Rose of Castile*, *Speciosa*, *William Bond*, all make good plants if properly trained by pinching.

Those who wish freezias for Christmas better get them potted by the last of July. We use bulbs that have been on the place many years and find that they force early, much better than those one can buy. They start away more evenly in the pots. We use ten bulbs to a five-inch pot and leave them outdoors until there is danger of frost.

Plants that flower at this time of the year are always acceptable. The *Kalanchoes* were once well-known but now they are never seen, although they certainly deserve a place in the greenhouse. Their culture is the same as *Kalosanthus*. *Kalanchoe flammula* is a good variety as is also *carnea* and *kevensis*. Many of these old plants ought to be revived. *Chironia linoides* is another useful plant at this season. *Stephanotis floribunda* is just coming into flower; it makes a handsome specimen when trained on a trellis.

The *Allamandas* are also beginning to flower, and who could wish a better bush plant than *Allamanda Williamsii* when in flower? Later on *Lapagerias* will bloom. Some of us can remember seeing trained pot plants of them with three hundred open flowers.

Ixora Fraseri is flowering with us now. It is one of the best of the *ixoras*. As the *achimenes* pass out of bloom, put them outside in a frame and gradually let them ripen off. These remarks apply also to *gloxinias* and *caladiums*. In the Fall remove them to warmer quarters. Many of the bulbous plants die from too cold treatment while they are resting.

In August shake out the *Lachenalias* and put them in fresh soil. Loam, leaf mold and about a third of dried cow manure is a good compost to pot them in. Twelve bulbs to an eight-inch pan makes a nice plant, but pots as small as three inches with a few bulbs in them, are very attractive plants for Winter use. Allow them to stay outdoors until there is danger of frost.

If possible, bulbs for early forcing should be secured in August. Paper Whites and Roman hyacinths, if they are desired early, should be well rooted by the time frost comes. In tulips, *Duc Van Thol* is forced for very early.

Tropical plants such as *crotons*, *marantas*, *anthuriums*, etc., are now growing freely and should have plenty of

space for developing their foliage. Top dressings with dustings of Clay's fertilizer and soft coal soot alternately will give rich color to the foliage and stimulate growth. See that they are shaded from the sun. Crotons, however, will take a very light shade.

Adiantum ferns should be gone over and all weak fronds removed to admit a free circulation of air through the foliage. Keep a sharp lookout for slugs as in no time they will ruin a plant. Dust between the pots with air-slaked lime occasionally, and this will take care of them. Sprinkle the top of the soil with soft coal soot which will take care of any that may have gone into the pot.

Have a good batch of Boston ferns for Fall and Winter use, also some of the better sports. The best way to keep up stock of them is to plant a few out on a bench in a light leafy soil. Many of the other ferns such as Davallias are very decorative. *D. fijiensis* and *Mooreana* make noble specimens. The elegant little variety *Tyermannii* is also worth a place in any collection. Gleichenias make handsome specimens and also Cibotiums and polypodiums. These plants all grow well in compost of good fibrous loam and flaky leaves with sand enough to keep porous.

Keep propagating poinsettia cuttings up to the end of August in dwarf pans for Christmas. Dipladenias are now flowering freely and to keep them in good condition will take stimulating with manure water. We find that cow manure, Clay's fertilizer and soft coal soot alternately once a week agrees well with them. Pinch the shoots immediately ahead of the flower stems. We find that by so doing, it will make any shoot that seems to be standing still start away and catch up to flowering along with the others. The vigor is apt to run to the shoots near the top of the plant unless they are pinched.

Keep plenty of moisture around the benches and floors where the orchids are grown and look out for slugs. Insect pests must also be hunted for all the time. Thrips are liable to get a foothold on miltonias and odontoglossums unless they are dipped or sponged occasionally. Keep plenty of moisture at the roots of the cattleyas until they have finished their growths. Dendrobiums are also growing freely. They need only a very light shade and must also have plenty of water and stimulating with weak hen manure water. Give calanthes plenty of heat and water until the new bulb is finished, and feed them freely. Always keep a crack of air on, as I think it prevents leaf spot. Grape thinning should be finished, and the work will now be largely routine, pinching laterals and attending to watering and airing. Stop syringing as soon as signs of coloring are detected; also see that they have enough water to carry them over the ripening period, as too much water is liable to give cracked berries.

Melons may still be planted for a succession crop where room is available.

Pot fruit that has fruited can now be repotted. Try and get them into the same size of pot or tub if possible. The roots may be reduced by loosening around the ball and any of the strong ones cut back. Use a good strong loam and pot firmly. Syringe frequently to keep the shoots from flagging. The object is to get good root action before the leaves fall.

Runners of strawberries should be secured as early as possible by those who intend to force them during the Winter. Pot them in 2½-inch pots as soon as good strong crowns can be secured with a few roots on them. Keep them fairly close in a frame until they get established. A light shade will be necessary to prevent wilting. Gradually give more air as they establish themselves. In two weeks they ought to be fit to pot along into 3½-inch pots, and then as quickly as possible into 6-inch pots. Marshall, Wm. Belt and Nick Ohmer are excellent forcing varieties.

The best advice for the hot months is look out for watering and shading and insect pests and stimulate plants that are root bound until they show signs of flowering.

SPECIMEN POINSETTIAS

John S. Doig

THE illustration is of two specimen poinsettias which are six feet, nine inches in height. The heads measure seventeen inches across from tip to tip of bracts. These plants were grown on from last year, 1920 stock, and were started up in the usual manner; first shaken out of the old soil and repotted in five-inch pots with a



Two specimen poinsettias.

mixture of good fibrous loam, cow manure, and bone meal. After having become well rooted in the five-inch pots, they were then repotted into seven-inch pots, from which they developed into the specimens as pictured. They kept their foliage well, five of them making a handsome showing when cut and placed in a large vase, with *Euphorbia Jacquiniaeflora* which kept in good shape for ten days in a room with a temperature ranging from sixty-five to seventy-five degrees. The plants held their shape very well in the same room for three weeks, after which they were cut and used as cut flowers.

A PRACTICAL HANDBOOK OF Trees, Shrubs, Vines and Herbaceous Perennials

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Work for the Month in the Garden

SAMUEL GOLDING

THE recent and often too abundant rains have had in many cases a somewhat discouraging effect on the vegetable grower, especially so where the planter has a heavy and retentive soil to contend with. On light and sandy soils, the growth of many subjects is most rampant and it has been a continuous struggle to keep the weeds in check. The frequent rains make effective cultivation a matter of some difficulty and the soft growth makes for fungoid diseases.

However, the remarkable growth of trees and shrubs and the thrifty appearance of most subjects in the flower garden and borders augers well for fine displays in the Fall, to say nothing of what we may expect next Spring, providing that the wood will be well ripened before Winter comes. The lawns are most verdant and restful to the eye, looking like early Spring instead of July, but at this time the Summer grass is oftentimes much in evidence and must be combatted with rake and mowing machine.

Reports of the pea crop in this locality have been generally unfavorable for this season, the climatic conditions being adverse to fine growth during May and early June when peas usually make their best growth, and very light crops are the result. The short supply of this most important and popular vegetable has made the perfect supply and succession of vegetables difficult to maintain. However, a bounteous Providence provides that the condition which may be unfavorable to some subjects is that which others revel in. String beans came in early with bumper crops.

When the peas have been removed, there is good space for celery, new strawberry plantations, late sweet corn or late cabbage. If celery is grown, some rapid maturing small crop can be planted between the rows, such as beets, horn carrots, lettuce, etc.

Make the last planting of corn about the middle of July (that of course means where the latitude is similar to that of New York) using any of the popular early varieties. Golden Bantam is very good for this purpose. Remove all basal growth from the growing corn and keep them well cultivated between the rows.

Plant out late celery and keep it well supplied with water. Spray the early plants with Bordeaux Mixture to prevent, or check rust. Continue to sow string beans and other small crops; also lettuce for Fall use. Tie up endive when large enough.

Continue to spray late potatoes for bugs and blights. The early varieties of potatoes will be fit to use now. Take up enough at one time for daily use as they will continue to grow until ripe.

Plant out new strawberry beds as soon as well rooted runners are available and can be lifted with a nice ball of earth. It is good practice to layer them into pots so that they can be removed as soon as they are well rooted, and the old plants removed to make space for cauliflower or cabbage. The pot grown strawberries are easier to handle in the event that the land for the new plantation is not at once available. Before planting make the ground firm; do not plant too deep, and give the young plants every encouragement to help them form fine crowns by the Fall. Keep off all surplus runners from the old plants that are retained for another season and fork in a dressing of bonemeal.

Keep an eye on asparagus as at this season it often times suffers from the attack of the larvæ of the asparagus beetle, and spray with Arsenate of Lead, or dust over when the dew is on in the morning.

Keep the tomato vines thinned to admit light and air to the fruits. A most satisfactory way is to grow them upon racks or trellises as they are easier to handle.

A dressing of some approved fertilizer will be of great benefit to most of the growing crops at this time, even though a liberal supply of manure was dug in in the Spring, for where intensive cultivation is carried out, the soil becomes somewhat exhausted after one crop and it is therefore good practice to add some plant food from time to time if we would get the best out of the land.

During wet periods it is advisable to raise the fruit of melons off the ground, pieces of wood, tile, slate or small inverted pots answering the purpose.

Spray the currant and gooseberry bushes as soon as they are cleared of fruit to keep the foliage free from pests. The work among fruit trees, known as Summer pruning can now be done. This is necessary where trained and dwarf trees are grown. The growths should be pinched back to about five leaves (except the leaders), but this is like most other gardening operations, no hard and fast rule can be made, and so some judgment must be exercised. Where the growths are extra vigorous and fruitless the tree should be root-pruned in the Fall. This will check excessive wood growth and makes for the formation of fruit buds. When apples or pears are thick and fine specimens are wanted, they should be thinned early. This attention well repays the time spent.

At this time the work in the flower garden consists of staking and tying, and keeping the insect pests away. Keep dahlias securely tied as they are easily broken or damaged during storms, and spray with Aphine to ward off attacks of aphid and other insect pests.

Transplant the seedlings of biennials and allow them plenty of room to develop into sturdy plants by the Fall. Take the cuttings of any stock propagated last month out of the sand when well rooted and plant out in well prepared ground.

Sow the seed of pansies, double daisies and myosotis for next Spring bedding. Some of the early blooming annuals may yet be sown for late cut flowers. Pick off all seed pods from continuous blooming plants as they cannot be expected to carry a crop of seed and then bloom again later. Pyrethrums, gaillardias, and *salvia pratensis* are the type of plants alluded to.

Cut out much of the old wood from rambler roses and tie up the new growths, allowing them plenty of room to grow and to get well ripened if we are to expect a fine show of bloom next year. Watch for the appearance of mildew and take early measures to combat it.

Give the teas and hybrids a good dressing of fertilizer as this will encourage strong growth for Fall blooming; keep the beds free from weeds by frequent cultivation and spray with Fungine for mildew.

Watch the evergreens, rhododendrons and azalea plantations for red spider which is their most persistent enemy, especially during hot dry spells. Wilson's O. K. Spray is effective in dealing with it.

BUDDING AND LAYERING ROSES

ROSE budding used to be an important item in the routine of a gardener's life and work. Then, as now, the most successful practitioner had no fixed and definite dates for his various operations. He left rigid calendrical gardening to others, for he realized full well that weather plays an important part in gardening. Successes and failures, particularly the latter, soon teach that it is the season and weather and not the calendar that must be studied if the best results are to attend our efforts. The time for outdoor rose budding is when the sap runs freely, so that the bark may be easily separated from the stem, and when the selected bud may be cleanly detached in its entirety. These two must coincide. It does not matter how beautifully clean the bark may be lifted on the stock if a perfect bud may not be taken to fit on it. Then the weather immediately following the budding has to be considered. Should it be unusually hot and dry, the bud is more than likely to shrivel before a union can be formed with the stock. On the other hand, cold and wet weather is equally fatal in that under these conditions the bud lies in danger of decomposition. So, as in most affairs, it is the happy mean in the weather that is needed for successful budding. These combinations of circumstances are generally found during July.

As to which method of budding is favored, it does not seem to matter whether it is the T-shaped incision, the inverted T, the square shield or the circular so long as, like the laying of a foundation stone, it is done "truly and well"; though the T-shaped incision has the sanction of fairly long and general usage. With this method it is easiest to make a perfect union between scion and stock.

The selection of the bud repays for consideration. It is the bud from a flowering shoot that is most satisfactory, and as will be seen from the illustration on this page, the best bud is found towards the basal end of such a shoot, for it is just there that they are the most perfect for the purpose. Lower on the shoot the buds are too dormant and too hard, while on the upper portion they are soft and not sufficiently developed. In the same illustration will be seen the bud prepared for insertion, and in this respect care should be taken to retain the little piece of leaf stalk with the bud. While preparing the bud it must always be remembered that the core, root, or base, as the embryo on the inside is variously termed, is the vital part, and must be treated with the greatest respect. Any injury to this part results in failure. While care is needed to ensure as perfect fitting as may be, and the tie sufficiently tight, but not so as to cause constriction, it is the skilled budder, who can do the work quickly, who succeeds in getting the highest percentage of "takes." On a dull day speed in working is not so essential, but during dry weather the buds and the exposed portion of the stocks both dry quickly, a condition not to be desired.

THE BRIAR STOCK IS BEST.—No longer can the gardener go out and get good stout briars from the highways and byways. During the past we have reaped, but we did not sow, and now are paying the inevitable penalty. This scarcity of briars is widespread, and in the endeavor to overcome it, various stocks, other than *Rosa canina*, have been tried with more or less success. The stock difficulty is more serious with standards. The *Manetti* stock answers very well for bush roses and is readily propagated by cuttings. But for standards none can's our English briar. Lately *Rosa rugosa* has been used a great deal. From the garden point of view the chief objection to it is its slenderness and also that the load can be once too heavy. Both of these faults could doubtless be removed if the nurseryman would grow the

stocks a year longer before budding them, but I suppose this is asking too much!

More recently a Japanese form of the Siberian *Rosa lara* has met with favor from the growers. A great point is that it is in a suitable condition for budding much earlier in the season than any other, so that budding is often commenced as early as May—the buds are taken from pot plants—which gives the nurseryman a much longer season than otherwise. This early budding nearly always results in the buds bursting into growth the same season, while one prefers the bud to remain dormant until the following Spring. Though if the *lara* stock results in sufficient growth of the bud to be properly ripened before Winter sets in, well and good, otherwise serious losses will occur.

LAYERING ROSES.—Many prefer dwarf roses to be on their own roots and insert cuttings later in the year. But there are certain varieties which do not root readily. With these the difficulty can nearly always be overcome by layering, a method which has a deal to recommend it for the garden where only a limited number of fresh plants are required. The layering is carried out much in the same way as with carnations, except that to get the required branch in position a stouter peg is required. For both budding and layering the knife should always be kept as sharp as possible because so much depends on the cuts being cleanly made. The best time for layering is about the last half of July, though, as with other shrubs, it can be successfully performed later.—*The Garden*.

ANNUAL MEETING OF AMERICAN ROSE SOCIETY

(Continued from page 207)

which Greta Kluis, Marie Pavie, were outstanding sorts, the latter a most inveterate bloomer but probably most distinguished among the roses in this new garden were tree roses planted only a year ago last Autumn but with heads of generous spread and 12 to 18 blooms to a plant.

In this little two-day journey the officers of The American Rose Society were fortunate in being able to visit the Rochester Rose Show. For more than one generation has Rochester been known as the flower city but it remained for the young blood of the present day of floral enterprises to put Rochester on the map again rosewise through capable career of this organization started by a master hand within the last two years and stimulated into active service by the rose patron of these parts, Dr. E. M. Mills. They have grown until the Rose Show of this year marks a triumph for scope, extent and quality. Other people have much to learn as do nearly all amateurs with reference to staging roses, but when you can get close to 1,000 people to come out of a night and study your roses (to say nothing of the arduous labors of staging such shows on the part of many of the busy business men and hustling housewives), you have certainly made great progress, and as far as appeared to some of the visitors it would seem as though Rochester would soon take the lead, indeed, if not already there.

John Dunbar of the Park Department with his assistant Mr. Dukelow, used two entire tables to display climbers and species of bush roses in extensive varieties clearly labeled, and outstanding among the exhibits by the Amateur was a huge bowl of Old Gold, a first prize winner. A stately display of Paul's Scarlet Climber and a charming vase of Souv. de Claudius Pernet.

ROBERT PYLE, President.

Know thy work, and do it like Hercules. One monster there is in the world, the idle man.—Carlyle.

Departments of Foreign Exchange and Book Reviews

AN AMERICAN'S IMPRESSIONS OF THE CHELSEA SHOW

FOR an American gardener a visit to the Chelsea Show is a rare and happy privilege, an inspiring lesson in the possibilities of making a flower show not only instructive, but beautiful, and also, alas! a source of despair in seeing so many exquisite plants which will not survive our cold Winters and hot Summers.

In recent years we have had in the Eastern United States many fine flower shows of which we are very proud, but even the large size of our biggest national shows had left me unprepared for any show on such a gigantic scale as the 1922 Chelsea Exhibition. We hope that the rapid growing interest in horticulture may make such shows possible with us in the not far distant future.

The show impressed me on account of its great size, its artistic arrangement, the high quality of the exhibits, and the tremendous variety of the plant material used. I liked it all so much that it is difficult for me to try to pick out the best things to comment on, for, with the possible exception of the big Carter clock and the garden surrounded by bright pink dwarf Rhododendrons, I liked everything.

As my greatest interest is in the Iris, I naturally spent much time in Messrs. R. Wallace and Co.'s garden, which received such high honors. This garden was a gem of design and color arrangement, and contained two of the newest Irises of English origin, Asia and Prospero, side by side with the French Ambassador and Souv. de Mme. Gaudichau and the American Lent A. Williamson. Lady Foster, Crusader, and Neptune also appeared to good advantage here, but Dominion had suffered from too hard forcing, and the flower was not characteristic. The Lilies, Azaleas and Regolio Cyclus Iris blended well with the Iris, and made a perfect whole.

The Bunyard Iris garden was also a source of delight to me, and here Ambassadeur, Lord or June, Magnifica and Isolene stood out as giants among some of the older sorts. In the Perry and Whitelegg exhibits, Regolio-Cyclus Iris were the feature.

Perhaps even more fascinating than the Iris gardens were the rock gardens, something we hardly know in America. I liked Mr. Wood's conception best, because it was so very simple that it reminded me of some exquisite bits of wild landscape in some of our New Hampshire or Vermont hills.

Messrs. R. Tucker and Sons' garden contained a greater variety of plant material, and was also very beautiful; in fact, nearly all the rock gardens struck me as being wonderfully artistic, as well as showing many exquisite little plants, and I spent more time with them than I did in some of the formal gardens.

The Rhododendrons were finer than any I had ever seen, the big bushes, in one of the big tents and in Messrs. R. Wallace and Co.'s natural garden being the most striking. To Rhododendron experts the cut flowers were probably equally interesting.

Another group of plants that I admired particularly were the Clematis hybrids exhibited by Messrs. G. Jackman and Co., and one or two others. European gardeners are used to these, and to an American all but one or two varieties are totally new. I do not know how they would grow under our conditions.

We are used to fine displays of Roses in our American shows, and perhaps for this reason the Roses did not impress me so much as some of the other flowers. They were of splendid quality on the first day, and I was glad to see some of the triumphs of two of America's greatest Rose breeders, Dr. Van Fleet and Mr. H. Walsh, both of whom have died within the past few months. The varieties noted were American Pillar, Hiawatha, Paradise, Excelsa and Minnehaha. We are very glad that these are appreciated in England, where so many fine Roses have originated. The American Rose Los Angeles, which won a gold medal at Bagatelle in 1918, was also noted in good condition, as were several other American varieties. The number of varieties exhibited was much greater than in most American shows.

Paul's Scarlet Climber was seen in wonderful form, but I did not think the flowers of the beautiful new Souv. de Claudius Pernet were quite as fine as those staged in our New York show last March.

There was so many new Roses to attract attention that I can comment on only a few. I liked Padre the best, but admired also Rev. F. Page Roberts, the singles Mrs. Oakley Fisher and Pink Delight and the Polyanthas Queen Wilhelmina and La Reine Elizabeth.

The Tulips were gorgeous. I have never seen a display as

fine as Messrs. Dobbie and Co.'s, although I have seen as fine flowers in small quantities in our shows at home. As usual, I liked La Tulip Noire the best of all, and Dom Pedro, Faus and Louis XIV were noted in fine condition in many exhibits.

Carnations surprised me, because I had always supposed the American Carnation was far superior to those grown in Europe. True, there was a liberal sprinkling of American varieties like Enchantress Supreme, Beacon, Benora and White Wonder, all of excellent quality, and also a few of Laddie, which were not nearly so big as with us, but the British varieties seemed equally good. I made no notes on varieties, but Thor impressed me the most. We have no commercially important Carnation of the color of Marion Wilson, which I liked very much. I was also impressed with the fact that at least one breeder was emphasizing the fragrance of his new varieties—a point forgotten by many American breeders in the race after size and productiveness.

The Sweet Peas were as fine as those shown by Burpee in New York, and were shown in greater quantity. The display of Orchids was larger than usually seen with us, with the exception of the recent special Orchid exhibitions put on by Mr. Burrage, president of the Massachusetts Horticultural Society.

These notes have already grown longer than I intended, because I do not know where to stop. I cannot close without mentioning how hungry I got every time I passed Laxton's wonderful strawberries, the like of which I have never seen. We are used to seeing fine vegetable and fruit displays at home, but for this season of the year the Hon. Vicary Gibbs' collection of vegetables was remarkable, and so was Messrs. Bungard and Co.'s collection of Apple varieties, which interested me as showing me many Apples I had read about in your columns in previous years. No American varieties were shown, and they are probably as unsuited to your climate as your varieties are to ours.

I am sorry that you had to treat us to some real American Summer weather during the show week, for it was not only hard on people but on the flowers, many of which were not in good condition on the last day, but my surprise was to see how remarkably they stood up under such adverse conditions. All praise is due to the skillful growers and to the able exhibitors and managers of the show who put on these wonderful shows year after year. I hope I may be able to attend many more of them.—JOHN C. WISTER in *The Gardeners' Chronicle* (British).

MANUAL OF THE TREES OF NORTH AMERICA, by Charles Sprague Sargent. Houghton, Mifflin Company, Boston and New York.

It might seem superfluous to mention in an American journal this work, the transcendent merits of which have already been recognized in Europe. An English reviewer, a no mean authority, refers to it as "no doubt the finest work on trees ever published." He declares that "for the lover of trees in North America this work must be indispensable; and in the British Isles, where gardens owe so much to the arboreal vegetation of North America, its value is almost as great."

The first edition, published in 1905 as a revision and condensation into one volume of the author's *Silva of North America*, a magnificent monumental work of fourteen quarto volumes and containing seven hundred and four handsome plates, has since its appearance held complete dominance in its field. This new edition, as an example of the book-making art—a volume that with all its astounding mass of content is of size and structure that actually makes it a practicable manual for field work,—and in composition so sane in selecting and in omitting—is beyond praise. It is absolutely unique in being the well-ripened fruit of most extraordinary genius and powers of work possessed by a man who for forty years has indefatigably studied and worked long hours as the Director of the Arnold Arboretum, by far the best place for a systematic study of the subject. But it may not be known generally that this institutional study and research rest upon a foundation laid in many arduous explorations, such as could be made only by a person of tremendous physical strength and energy, of all the widely scattered portions of the enormous field. The author shows the advantage of thorough acquaintance with the *Silva* of Japan also, which is so closely related to that of temperate North America, and about which he once published an authoritative work. When reference to a genus existing in other parts of the world also seems to be desirable for contrast such reference is made, as for example, in the case of *Ficus*.

The work is profound in its scholarship. The few changes made from classifications in the former edition must meet with universal acceptance. There is commendable insistency upon

strict adherence to the rules of nomenclature adopted by the International Congress of Botanists. Carelessness in the use of names, or popular names is indicated by omitting from the Index such hybrid terms as "Concolor Fir;" but "White Fir" and *Abies concolor* are listed.

As a result of the few changes in classification and the addition of four families and sixteen genera this new edition contains an account of seven hundred and seventeen species of trees in one hundred and eighty-five genera. They are illustrated by seven hundred and eighty-three drawn figures, which, as really good drawings made by experts can do, show more clearly than can reproductions of photographs the details of form, structure and functioning parts. They reveal, as do other evidences of hard work, the felicity with which Professor Sargent has attached to himself capable and devoted helpers.

The book has of course not been intended primarily for the nurseryman or the landscape designer. But a careful use of it by them would often be well rewarded. Exotic trees, with the exception of the few that have become naturalized as "escapes" and such important "introduced" trees as the White Mulberry and the Black Mulberry, are not given place. Distinct species of great importance to the nurseryman, like the Bechtel Crab and the so-called Bartram Oak are given appropriate mention; while sporting forms like Teas' Weeping Mulberry and the Weeping Hemlock and cultivated seminal varieties of the Hemlock, as well as sports in coloring like Koster's Blue Spruce are not given space; but the author has seen fit to refer to Dogwoods with rose-colored or pink involucres which have come to be admitted as now constituting a variety by themselves, and to two other varieties, *pendula* and *xanthocarpa*. The planter of trees is told of the important difference between the northern form and the southern form of *Magnolia glauca* and between *Amelanchier canadensis* and *A. laevis*, the latter being the more desirable of the two Service Berries. The European planter is informed that the Red Oak is generally more successful in his continent. Much other information has been barred by limitations of space, evidently much against the author's will. He has contented himself with calling attention only in the most prominent instances, without the extravagance of the catalogs, to especial beauty. He does give the origin of the name where that helps to know better the subject, as it often does. The commercial uses of the various genera and species are wisely set forth, succinctly but thoroughly, as is notable, exemplified by the eight lines treating of this topic under *Tilia*. Minor matters that might be missed by the inquirer for information in making use of certain trees for planting, such as the unwisdom of placing a Soft Maple or a Box Elder into a certain site, have had to be left to books of landscape gardening.

But the book is almost incomprehensively complete and thorough. Perhaps the most wonderful part of it consists of the one hundred and fifty-two very compact pages describing, with exact botanical detail, one hundred and fifty-three species of *Crataegus* each illustrated by an exquisitely nice drawing. In fact, in treating of silvan growth native to the wide field covered nothing seems to have eluded notice: *Magnolia acuminata* var. *Sarg.*, for example, is noted as "having been preserved in gardens for more than a century and not re-discovered as a wild plant until 1913." To emphasize the accuracy of the work as a whole the present writer would modestly add that he has happened upon only one misprint, and that a trifling one, in the Index, "Oak, Mossy Cup," obviously intended for "Oak, Mossy Cup."—F. B. M.

GARDENING WITH BRAINS by Henry T. Finck, Harper and Brothers, New York.

In both form and content this volume is the strongly characteristic issue of the mind and personality of the man who for forty years has been on the staff of the New York *Evening Post* as "Musical and Epicurean Editor" and has published a book named *Food and Flavor*. It is the resultant of a very lively mixture of almost rollicking humor, uniquely keen powers of mental and physical enjoyment, intimate friendship with such persons as Luther Burbank, John Burroughs, Edith Simonds and well-known and originating seedmen and horticulturists, all persons through whose arteries pulsates intense love of Nature,—and experience in gardening in one of the least favored regions of the country, Northern Maine. So it was *spirit* as well as with brains that were written these entertaining pages that treat of seeds and tillage, of the most savory vegetables and the importance of their rapid transit to the table, of what are the flowers most worth while and how to rescue them and the vegetables and the fruits from their enemies, of what are the most luscious and most wholesome fruits already available and of what may be hoped for in the way of obtaining fruits still more luscious and

It is in this last phase of the general subject that the most perfect results are to be obtained. Green manuring and intensive cultivation have full appreciation, the "fragrant soul of flowers" is descanted upon most eloquently and a slight attempt is made to show respect for creative design and pictorial beauty in the garden, not altogether successful, to be sure, for the author's taste in this matter is a trifle bizarre, as is witnessed by his fondness for "rain-

bow corn" and blue poppies. But for Luther Burbank his enthusiasm is so great as to make one almost believe that this "plant wizard's" work is nearly as great, if not quite as great, as it is made to appear in his own books and in the many eulogistic books that other persons have written about him. The chapters, *The Joys of Creative Gardening*, *Educated Strawberries* and *Burbank Plums*, and *Commercial Value of Burbank's New Creations*, are powerful. They defend with a convincing array of facts and with reasoning, all set forth feelingly, in the conclusion of this very entertaining, instructive and handsomely made book.—F. B. M.

OPPORTUNITIES OUT-OF-DOORS, by Edward Owen Dean. Harper and Brothers, New York.

This is one of a series of little books that seem to be all worth while. Others are *Opportunities in Engineering*, *Opportunities in Aviation*, *Opportunities in Farming*. This particular volume considers opportunities in Construction, in Forestry, in the Lumber Industry, in Tree Surgery, in Rural Motor Express, in Collecting and Growing Medicinal Plants and in Landscape Gardening. It is accordingly a work that should be of interest to many readers of this periodical and should be of help to all persons, old and young, in interpreting that call that to the dwellers in cities often becomes very, very strong. It is written from the conviction that "one of the saddest sights in life is that of a man in the wrong job." But it abounds in cautions; all praises of the professions treated were first carefully discussed by the author with men actively engaged in those respective callings. The natural aptitudes and the requirements for success are stated no less frankly and with no less seriousness than are the attractions.—F. B. M.

BULB GARDENING, by Mary Hampden. Charles Scribner's Sons, New York.

This is a brave and spirited attempt to treat a very brief subject succinctly and yet comprehensively; bulbs for growing indoors as well as the hardy ones are included. Consequently the discussions of most topics is necessarily rather sketchy; but it is skilful. For a brief treatment the chapters given to Hyacinths, Tulips, Daffodils and other *Narcissi* are quite satisfactory. Under *Irises* the author does well to include in this work the rhizomatous and the fibrous-rooted also; it is to be regretted, however, in view of the great widening of the class of *Iris germanica*, that she puts this species among those that are suitable for damp soil beneath trees. Concerning them the book gives only a bare intimation of their remarkable developments made during the past few years. As to their culture is it not poor advice to state that "three inches deep is a good average" and that "in very light sandy borders a greater depth is often desirable"? This is apt, even in sandy soils, to cause rot at the base of the leaves, as certainly would "a layer of old cow manure in October."

The chapter on Snowdrops, Crocuses and Chionodoxas is a fine one and makes more poignant the chagrin felt by American gardeners in not being permitted to import the first and the last of these delightful diminutive flowers. The section devoted to Lilies is the most nearly complete and most satisfactory of the entire book. It touches upon the wild European corn flag, or *Gladiolus communis*, and contains the all too brief mention of the Hemerocallis. Its one deficiency lies in not distinguishing those lilies that form roots above the bulb from those that feed below the bulb only. A valuable service has been done by putting into systematic and compact form an appreciation of the many minor bulbous flowers, such as the anemones, fritillaries, ranunculuses, alliums, ornithogalums, meadow saffrons, cyclamens and Christmas roses. Likewise deserving of thankful appreciation are Part II, which is a summary treatment of the multifarious glass-house bulbs, and Part III, which enumerates, with the most necessary directions for their cultivation, the half-hardy bulbs, such as the tuberous Begonia, the *Gladiolus* and the Dahlia, not to mention more than a score of others.

Considering the wide range covered one must recognize that the author has been wonderfully attentive to this interesting class of flowering plants which, though very popular, is not yet generally made use of as it ought to be, for in addition to being so diversified in beauty it is true, as an old book on gardening tells, that "in a sense bulbs are of more easy culture than any other class of plant, as, the germ being previously formed, and the nourishment provided in the body of the bulb, it is only necessary to supply heat and moisture to cause these to develop."—F. B. M.

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Boston, Mass.: Robert Cameron, chairman.

PLANS FOR BOSTON CONVENTION, SEPTEMBER 12, 13, 14, 15

A MEETING of the Boston branch of the National Association of Gardeners was held at Horticultural Hall, Boston, on Friday evening, June 30, about 35 members present, including a number from Manchester, Prides Crossing, Ipswich and other North Shore resorts. Robert Cameron, president of the N. A. G., presided and called the meeting to order. W. N. Craig, general chairman of the convention committees, spoke of the duties which would fall on each committee, and the members expressed a willingness to see the same carried through.

Meetings will be held at Horticultural Hall, at the corner of Huntington and Massachusetts Aves., which is a short car ride from the Back Bay Station of the N. Y., N. H. and H. R. R., and the Trinity Place Station of the Boston & Albany R. R. A constant stream of cars pass the hall as the heart of Boston is only a few minutes distant. In very close proximity to Horticultural Hall are such notable buildings as Symphony Hall, the New England Conservatory of Music, the Christian Science Temple, Boston Museum of Fine Arts, Y. M. C. A., etc. Our hotel headquarters will be only a few minutes' walk from Horticultural Hall.

The first two days of the convention will be devoted to business, and none will be transacted on the two closing days. For the opening day speakers will include the Mayor of Boston, the president of the Massachusetts Horticultural Society and one or two others of horticultural prominence. The annual banquet will be held on the second evening and some very unique features will be arranged for this occasion.

On the morning of the third day a large number of automobiles will start early for the famed North Shore of Massachusetts and several of the finest gardens in Beverly Farms, Manchester, West Manchester, Prides Crossing, etc., will be visited, and passing on to Ipswich, the convention party will be the guests of Mr. and Mrs. R. T. Crane at a real New England clambake. Later, the extensive gardens at Castle Hill Farm, the 2,500 acre estate over which Robert Cameron presides, with its five miles of coast line and rolling dunes of white sand, will be inspected. On the return journey to Boston the Cedar Acre gladioli and dahlia gardens of B. Hammond Tracy will be visited, and Mr. and Mrs. Tracy will entertain the visitors; places of historic interest will be passed en route to Boston.

On the last day of the convention the noted Arnold Arboretum with its matchless collections of trees and shrubs, and part of Boston's parkways will be inspected. Later, visitors will be taken to Cambridge where under the shadow of Harvard College the world-famed collection of glass flowers in the Agassiz Museum, will be seen. Leaving Cambridge, historic Lexington and Concord will be visited, and later the famous Walter and Henry S. Hunnewell estates in Wellesley with their wonderful specimens of trees and shrubs, will be inspected. Other points of interest will be taken in to fill out a most interesting and well varied day.

It was voted to send a letter of sympathy to Mrs. Thomas Hatton of New London, Conn. Mr. Hatton was a well known and much esteemed member of the N. A. G. A set of By-Laws for the use of local branches was discussed and adopted; also amendments relative to the reserve fund of the N. A. G. Another meeting will be held on Friday evening, July 28 at Horticultural Hall.

NEW DIRECTOR

President Robert Cameron has appointed George H. Pring, Horticulturist, Missouri Botanical Garden, St. Louis, to serve as director until 1924, to fill the unexpired term of Albin Martini, formerly of Cedar Rapids, Iowa.

COURSE FOR TRAINING GARDENERS

The attention of the members of the association is called to page 209 of this month's issue of the GARDENERS' CHRONICLE on which the announcement of the course for training gardeners, adopted by the association, in cooperation with the Massachusetts Agricultural College, is made.

NEW YORK PARTY TO CONVENTION

It is planned that members in and around the locality of New York who are going to attend the Boston convention will leave as a party Monday evening, September 11, by the Boston outside line, and will arrive in Boston on the following morning, the opening day of the convention, Tuesday, September 12.

The final convention program and complete details regarding hotel headquarters, and to whom to apply for hotel reservations, will be made in the August issue of the GARDENERS' CHRONICLE.

NEW MEMBERS

The following new members have been recently added to the membership roll of the association: Richard Rogers, Stamford, Conn.; Charles Linek, New York, N. Y.; Eric H. Wetterlow, Manchester, Mass.; Einar Schacht, Westbury, L. I.; James Morton, Beverly, Mass.; P. S. Van Baarda, Boston, Mass.; Wm. Williams, Elberon, N. J.; Alexander P. Dewar, Boston, Mass.; Victor E. Nelson, Boston, Mass.; Thomas W. Carr, New York, N. Y.; Thomas Whyte, Topsheld, Mass.; Allen Rainsford, Armonk, N. Y.; Gaston Gaberel, New York, N. Y.; Thomas H. McNamara, Kennett Sq., Pa.; Samuel Scott, New Haven, Conn.; John I. McLane, New York, N. Y.; James Finnie, Boston, Mass.

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CAMPBELL Wednesday nite mach 19 ..

The first outdoor meeting of the season was held at the Estate of S. Plant, at Clayton, Mo., June 4th. After a short business session the members were conducted over the grounds by Mr. Plant and Wm. Schoenhofer, his gardener. It was explained that ten years ago this estate was practically treeless and the soil of such a tenacious clay nature that it seemed a rather hopeless proposition for its development into a country estate.

It is now, however, one of the finest estates in the vicinity of St. Louis. The luxuriant growth of the trees are largely due to the use of dynamite previous to planting and subsequent cultivating, mulching and care. This place is an object lesson to those who believe that it takes a lifetime to grow trees of sufficient size for shade and comfort.

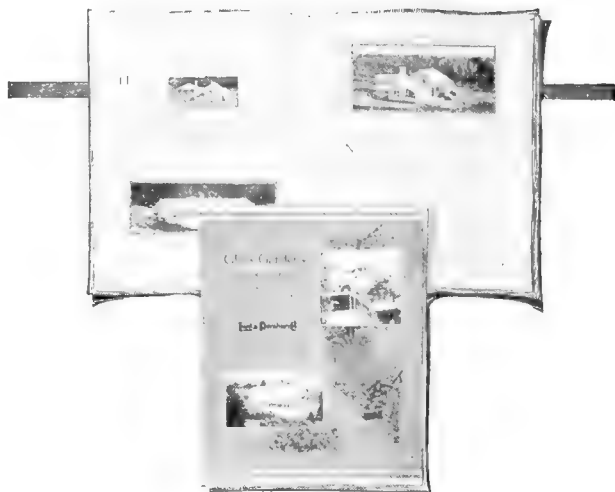
After the inspection of the premises a luncheon was served.

The July meeting was held at the establishment of C. E. DeWever, Olivette, Mo. Mr. DeWever is a commercial grower, specializing in French hydranges and gladiolus. A special demonstration of his practice of cultivating with a small tractor and method of irrigation was given for the benefit of the gardeners, which proved both interesting and instructive. Before departing a lunch was served.

L. P. JENSEN,
Cor. Secretary.

THE CLEVELAND HORT. SOCIETY

The above society held its first monthly field trip of the year on June 22. The weather conditions were ideal, and about fifty of the members turned out. The trip



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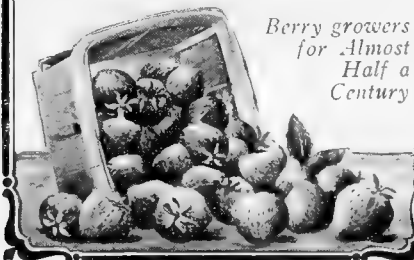
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was made in autos, commencing from the estate of F. F. Prentice, Mayfield Road, at ten o'clock. R. P. Brydon, superintendent to Mr. Prentice, welcomed the guests and showed them over the extensively developed grounds. The wonderful masses of Japanese iris were greatly admired, as were also the formal gardens. The greenhouses were gone through where everything was found growing in perfect condition. The French hydrangeas and liliums in bloom were a source of much admiration.

The estate of J. L. Severance was next visited, where A. Brown, the superintendent, led the members through the greenhouses and some beautiful specimen ferns were seen. The Fall crops were all growing splendidly. The other gardens on the estate were inspected with much interest. The evergreen plantings here are most artistically arranged and caused considerable comment.

The C. C. Bolton estate was the next stop, and Mr. Knapp, superintendent, showed the men the rose and formal gardens, which were much admired.

F. E. Drury's estate at Gates Mill was the next one taken in, where J. H. Francis,



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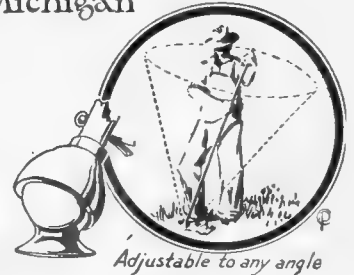
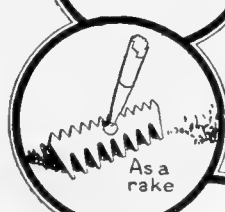
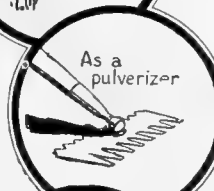
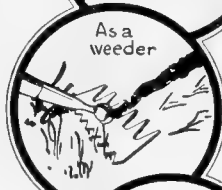
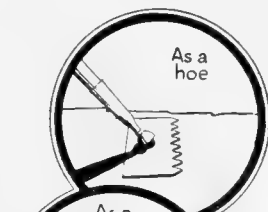
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superintendent, conducted the delegation through the range of glass. Everything was found to be in splendid form; the ripe melons in the houses drew a lot of attention, but it was too hot to remain there long. A walk through the new vegetable garden edged by perennial borders and terraced up to the rose garden by cobble stone walls was of great interest, and then back through the barns where the thoroughbred Guernsey cattle were visited which received equally as much interest as the horticultural departments had.

Chagrin Falls was the next point, the autos driving along the beautiful river road to the estate of E. S. Burke, Jr., where Mr. Fisher, superintendent, gave the men a real welcome. After lunch the new range of glass was inspected where everything was coming along in fine shape. A walk up the winding drive which follows through a valley was very beautiful; the natural planting which has been done during the past two or three years looks as if it has always been there.

A drive in the autos along the private driveways which are almost five miles in length was indeed interesting, stops being made at different points along the way. Mr. Fisher explained the development of the estate, the cobblestone rockwork used mostly as retaining walls and covered with low growing plants and shrubs, appeared as though they had always been a part of the place.

The last stop was made at the estate of W. T. White where the formal gardens were most favorably commented on. The member of the delegation, each one going in his own direction, well satisfied with what he had seen and heard during the day.

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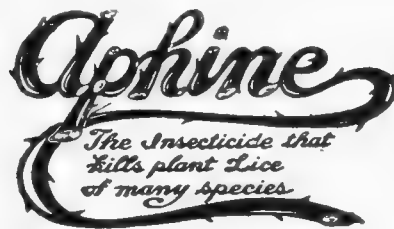
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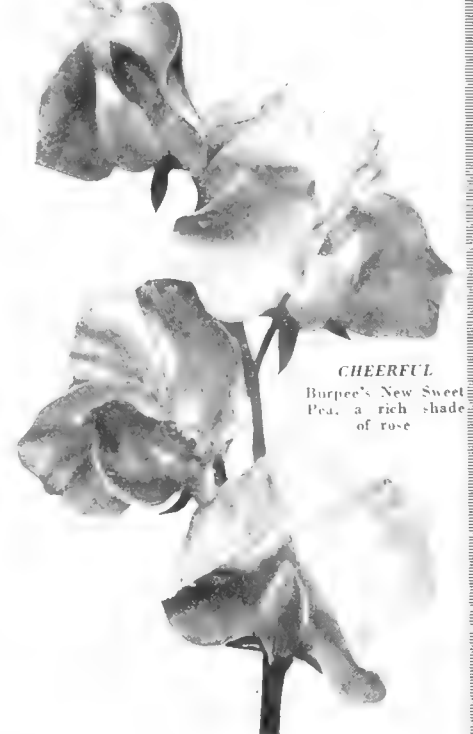
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

AUGUST 1922

No. 8

Things and Thoughts of the Garden

WILLIAM N. CRAIG

MANY moisture loving plants, commonly regarded as semi-aquatic, do remarkably well in the average perennial border, especially where they have a generous soil and can have an occasional watering in times of drought. A few of these plants are *Senecio clivorum*, *Lobelia cardinalis*, *Lythrum roseum superbum*, *Iris Kämpferi*, and thalictrums in variety. *Senecio clivorum* is a very robust subject and while its real home is on the margin of ponds, it succeeds well in the herbaceous border. It is somewhat coarse but flowers at a time when there is no great variety in the hardy garden, excepting phloxes of the *paniculata* type. The spikes of *Lobelia cardinalis* grown in dry land I have found keep much better in water than those from boggy locations. *Lobelia syphilitica* also makes an excellent border plant and the Chelones, usually associated with swamps, also succeed extremely well. Even the so-called water forget-me-not, *Myosotis palustris*, will flower all Summer in a border if it can enjoy a little shade.

Flowering shrubs in August are not abundant and the Buddleias are very welcome. They have so far proved immune from both insect pests and diseases and are of such easy culture that everyone should try a few plants. They should not be pruned until Spring, and then if cut down near the ground, they will do their best. If pruned back in late Fall, I find that they Winter poorly. Plants have withstood a Winter minimum of 20 degrees below zero without injury even when unprotected. Of the various forms of *B. variabilis* in commerce, I consider *magnifica* by far the best. Its racemes are much more freely produced than on *Veitchiana* and the plant has a better habit. *B. Eva Dudley*, a hybrid between *Asiatica* and *magnifica*, blooms in October out-doors. It is intermediate in color but does not flower as abundantly as either parent. It is useful in the flower garden in Fall when flowers are becoming scarce.

The various bush honeysuckles are always very attractive while in fruit. The bulk carry scarlet fruit but some are golden and one carries berries similar to blueberries in color; these latter, however, are somewhat short lived. The scarlet fruited forms are much the most striking and if one could only have them for the holidays, how effectively they could be utilized! I consider *Morrowi* much the finest of the red-fruited section, and it always carries a greater wealth of fruit than any other *Lonicera*. Many people purchase what purports to be *Morrowi*, raised from

seed. These plants generally run up as tall as *tatarica*. The true *Morrowi* rarely exceeds six feet in height, but will spread fifteen to twenty-five feet across if allowed space. If given room to show its individuality, there is no more beautiful shrub either in flower or fruit. Propagation by cuttings in Summer is very easy.

How long will potatoes succeed in the same soil? It is generally considered suicidal to plant two successive seasons, and we are told of the absolute necessity of crop rotations if we want a satisfactory yield. I have in mind a good sized plot which has just produced its seventh crop of potatoes without change, and the last crop was far the heaviest and cleanest of the lot. After harvesting each year Winter rye has been sown on the plot and allowed to make considerable growth in Spring before being plowed in. A commercial potato fertilizer has been used at planting time, while a top-dressing of nitrate of soda has been given when the plants were four to five inches high. No manure whatever has been used for seven years. The plants have had three sprayings each season. The varieties grown have been Spaulding Rose, Irish Cobbler, and Green Mountain. Those who want potatoes but have only limited land and cannot give rotations, commonly advocated, may gain comfort from this experience.

Much has been published about the waning popularity of the Baldwin apple of late. Some growers class it as too tender; others that it only crops in alternate years, and we are further told, that its color and flavor are inferior to some other varieties. In so far as cropping is concerned, I find Baldwin still a top notcher, and while it lacks the brilliancy of Macintosh Red and Wealthy, it is less easily bruised than these varieties, far less susceptible to skin fungus and a vastly better keeper. Macintosh is a beautiful apple but its season is Fall and very early Winter, while Baldwins may be kept in good condition until the end of June. Both Macintosh and Wealthy need several sprayings after the fruits set if freedom from fungus is wanted, and in this connection dust spraying is proving more effective than liquid spraying at a great saving in time and labor. I think the time is not far distant when aeroplanes can be sent over orchards and shade trees to send clouds of dust over them as a cure for both insect pests and diseases, as was demonstrated in England the past season.

Speaking of insect pests, it is interesting to note that near Boston, where the gypsy moth got its start in America and where millions of dollars have been spent in combating it, that this major pest is scarcer than ever before, this being due to the prevalence of the wilt disease, the work of parasitic foes and unfavorable climatic conditions, for all of which we are profoundly grateful. The brown tail moth is extinct except in a few scattered localities. The elm leaf beetle, which came as a plague in 1900, threatened to wipe out all our elms and finally disappeared, has come back in places, but is not numerous. The oak leaf roller threatened to destroy all our oaks six or eight years ago, but is now rarely met with. The San Jose scale, which was to clean out all our orchards, is still with us but is gradually dwindling. It taught us the necessity of dormant spraying and, as a result, we have much better orchards. The European corn borer is destructive now but it will, before long, be controlled by parasites. Other pests there are in Massachusetts but where tons of arsenate of lead were used a decade ago, 100 pounds suffices for protection now, and if we only had more birds, our insect fights would be still more lightened.

* * *

The latest document from the Federal Horticultural Board is pitifully weak when examined. The eminent array of Government and State officials dare hardly criticize the hand that feeds them, knowing full well that if they did so, they would speedily suffer decapitation, and the various nurserymen who applaud the beneficent (to them) Quarantine 37 do so, not because they are terrified at the possible introduction of a few more bugs but because the F. H. B. functioning as a tariff board accords them almost complete protection from foreign sources, and that means much higher prices for home raised plants to the ultimate consumer, and of course this is the only legitimate way to build up "a more truly American Horticulture!" Dr Marlatt's special committee has given the F. H. B. the generous coat of whitewash desired, but their latest exploits will only tend to strengthen opposition to the board as at present constituted, and further camouflaging on their part will be necessary if they hope to hoodwink those who remain unconvinced that a board of scientific theorists appointed to protect us from plant pests and diseases should appoint themselves a tariff legislative body.

* * *

Some years ago when *Watsonia Ardernei* was first introduced from South Africa it attained some popularity as a greenhouse plant. Of late it is rarely seen. In Florida, California and other warm States these beautiful bulbous plants are very popular as garden plants and flower over a long season. My friend, F. W. Fletcher of Orlando, Fla., sent me some bulbs last Fall. These were pot-grown and flowered beautifully, the colors being mainly peach pink and pure white. The spikes are well branched and carry as many as 50 or more flowers each. They grow somewhat taller than gladioli, want similar culture and are fine for cutting. For use in groups of flowering plants at our Spring shows they would be excellent. I do not remember to have seen any at recent shows. Bulbs are obtainable in abundance in both Florida and California. *Watsonias* might also prove a profitable bench crop for commercial growers to try in a moderate way, cutting them when the first two or three flowers open.

*

The splendidly flowered *Vallota purpurea* is rarely seen at estates. It is one of those subjects which is usually better grown and flowered by small amateurs than by professional gardeners, and quite commonly at agricultural fairs in Massachusetts in September or early

October, splendidly flowered plants in large pots or tubs are exhibited, carrying anywhere from two dozen spikes upwards. Those who flower them so successfully usually winter them in a light cellar, and a point to remember is that while they are closely allied to *Amaryllis*, they are evergreen leaved and must never be dried off. Furthermore, they resent disturbance at the roots and flower most profusely when bulbs are crowded and receptacles matted with roots. In this respect they are not dissimilar from *Nerines*. There is a pure white form of *Vallota* in cultivation and several varieties of the scarlet type, the finest being called *magnifica*. *V. purpurea* was introduced from South Africa in 1774 and the plant is named after M. Pierre Valot, a French botanist who wrote a description of the royal gardens as long ago as 1623. For the successful culture of *Vallota*, it is necessary to cover bulbs several inches deep and bed them well in sand. It will take a year or two for them to thoroughly establish themselves. Well grown and bloomed plants, carrying numerous spikes two to three feet in height, are most attractive.

* * *

Greenhouse tomatoes have this season been more troubled with mildew than for many years owing to the prolonged spell of hot, rainy weather in June, with many dark days with an atmosphere reeking with humidity. A great many florists grow tomatoes as late Spring and Summer crops and nearly all private estates where there are greenhouses plant quite a number. The value of dust over liquid spraying has been clearly proved this season. I have used 80 per cent sulphur and 20 per cent lime, and this has controlled mildew much better than Bordeaux mixture or sprays containing sulphur. At the Lexington Field Station, managed conjointly by the Boston Market Gardeners' Association and the Massachusetts Agricultural College, a large number of varieties, mostly of British origin, are being tested under glass this season, and the one which seemed to me to be the best all round sort was Lister's Excelsior, a 1917 introduction. Comet also showed up well, but the crop was not, owing to mildew attacks, a normal one.

* * *

What is the best producing and most disease-proof asparagus? This is a question frequently asked and it is an important one. There has been a steady improvement in varieties and types of late years and much has been accomplished by selection. Not many years ago Palmetto, Giant Argenteuil and Conover's Colossal were the stand-bys. These varieties are still largely grown but Reading Giant has forged to the front rapidly of late years. Now it in turn seems destined to play second fiddle to Martha Washington. There are several Washingtons on the market, which is unfortunate, as the average amateur or private gardener does not know whether to buy Mary Washington, Martha Washington or Washington. At present Martha seems to fill the centre of the stage.

Usually seedsmen carry what are termed two-year-old roots of asparagus which average no larger in size than yearlings. An excellent way to save time is to sow seeds under glass about Christmas, pot off singly into 2½s and later into 4s, gradually hardening off and planting out as soon as weather permits. There will be no loss from plants thus raised and they will grow five or more feet high the same season, and with me have proved far more satisfactory than either two or one-year-old dormant roots.

The amount of pleasure that there is in this world can never be measured. The philosophy of life is reciprocity and a man gets what he gives. Chauncey M. Depew.

Plants With Subterranean Stems

FLORUM AMATOR

WHAT is a plant stem? It is the axis of the plant on which all other organs of the plant are borne. Branches are secondary stems, that is stems growing out of the main stem. Stems at the very beginning produce roots. The stem is an ascending axis, except those subterranean stems which are in the form of a rhizome, and the root is the descending axis.

There are two general classes of stems, namely, above-ground and subterranean or underground stems. The pronounced characteristic of above-ground stems is that they bear leaves. Underground stems do not bear true leaves, but the rudiments of leaves or what answers to the leaves of above-ground stems.

Above-Ground Stems.—These stems are of several different forms, which are usually classified as follows: *Herbaceous* stems which die down to the ground each season after flowering; *suffrutescent*, which are slightly woody below, but herbaceous above; *fruticose*, woody and living through the years, but growing however not more than four times a man's height; *arborescent*, in appearance and manner of growth tree-like, and in size approaching a tree; *arborescent*, forming a proper tree trunk. These different forms of above-ground stems are found everywhere and may be readily observed, but subterranean or underground stems are not easily observed, and few consequently have any knowledge of these. It is of these, therefore, we purpose to speak.

Subterranean or Underground Stems.—"These," says the late Prof. Asa Gray in his excellent botany, "are very numerous and various, but they are commonly overlooked or else are confounded with roots. From their situation they are out of ordinary sight; but they will well repay examination, for the vegetation that is carried on underground is hardly less varied or important than that above ground."

Subterranean stems are of four different kinds, namely, the Rhizoma, Rhizome or Rootstock; the Tuber; the Corm, or solid bulb, and the true bulb.

Rhizomes, or Rootstocks.—The Rhizome or Rootstock is a creeping stem or branch growing partly or wholly beneath the soil. These are variously spoken of as scaly, running or creeping roots. The Spearmint, *Mentha veridis*, the Peppermint, *Mentha piperita*, the taste and fragrance of which are so refreshing, and also the hated "Couch Grass" or "Quick" Grass, *Agropyron repens*, are common and therefore well-known examples of plants with rhizomes. *Acorus calamus* Calamus, or Sweet Flag, is another example of a plant whose stem is a rhizome. The rhizome of this is sold by druggists under the commercial name, Calamus; it is edible and is often made more palatable by a coating of sugar and thus becomes a confection. The tender young spadices and the tender bases of the sword-like leaves also of *Acorus calamus* are edible. Still other examples of well-known plants with rhizomes are *Polygonatum biflorum* and *Polygonatum giganteum*, the smaller and the greater Solomon's Seal; *Smilicina racemosa*, False Spikenard; *Iris versicolor* and *Iris prismatica*, the Larger and the Slender Blue Flag, often called Iris and Fleur-de-Lis. These plants which have been mentioned as having rhizomes are all either indigenous or naturalized, but some cultivated Irises have rhizomes.

Tubers.—A tuber is a part of a rhizome (rootstock) more or less thickened and with buds (eyes) on its sides. As a matter of course there are all gradations between a

rootstock and a tuber. The common potato—*Solanum tuberosum*—and the Jerusalem Artichoke—*Helianthus tuberosus*—are well-known typical examples of the tuber. Other examples of the tuber are the Dahlia—*Dahlia variabilis*; the turnip—*Brassica* and the Ground-Nut or Wild Bean—*Apios tuberosa*. All of these tubers, which have been mentioned, are edible. The scalelike growth, which is seen at intervals on rhizomes and the eyes which are seen on both rhizomes and tubers correspond respectively to the leaves which are seen on the above-ground stems and the buds seen in the axils of these stems.

The Corm or Solid Bulb.—A corm is a thick and extremely short and fleshy underground stem, not unfrequently of greater breadth than height. From the upper end of the corm arise stalks and leaves and from the lower the roots descend or spread out. Among cultivated plants, the Crocus, Gladiolus and Cyclamen are well known examples of plants growing up from corms, and the Indian Turnip—*Ariscama triphyllum*—among wild plants. The first two and the last are reproduced annually, the new corms forming on the sides and summit of the old, but the corms of the cyclamen enlarge and go on producing leaves and flowers through the years. A corm resembles a tuber in its habit of budding on its sides, that is from the axils of its leaves but these leaves are not scales as in the case of rhizomes and tubers but are the bases of the foliage leaves which cover the surface of the corm. The corm resembles the true bulb in having these sheathes or wide scales, but the solid part of the stem makes up most of the bulk which is not the case in the true bulb.

The Bulb.—A bulb is an underground stem whose solid centre is like a reduced corm, but whose major part is made up of thickened scales which are leaves or the bases of leaves and which cover the central corm-like part. In fact a bulb is a bud on an extremely short stem and surrounded with fleshy scales. In the bases of these thick, fleshy, overlapping scales is stored the food for the most part for the future growth of the central corm-like bud, surrounded by these scales but in the case of rhizomes, tubers, and corms the store of food for future use is in these subterranean stems. In lilies we see examples of bulbs with thick narrow scales.

In Hyacinths and Onions we have examples of coated or truncated bulbs, that is bulbs whose scales enwrap each other in concentric layers. The small bulbs which grow out of the large ones underground or in some cases above ground in the axils of the leaves are called bulblets. The bulblets which grow in the axils of the leaves of some kinds of Lilies or in the flower clusters of the Onions never grow into branches since they are buds with thickened scales, but when mature, drop to the ground and take root there and form new plants.

A proper and effective method of studying underground or subterranean stems is to procure a rhizome, for example, of an Iris, a tuber of a potato, a corm of a Cyclamen and a Gladiolus, a bulb of a Lily and a Hyacinth, and note first their forms; secondly their bud scales, and buds; thirdly their true roots, and from what point these roots spring, and from what point the new plant grows annually.

We will readily understand the importance of underground stems upon considering the fact that the majority of our most used edible vegetables and many of our beautiful flowering plants have stems which are wholly or partly subterranean.

Ornamental Flowering Trees and Shrubs

CAMILLO SCHNEIDER

In Gartenschönheit, translated by F. B. MEYER

WHEN the blackthorn awakens from its Winter's rest we know that the fullness of Spring has come. Its branches, so mournfully dark in Winter, froth over, as it were, in white billows of blossoms, and at its feet in the green grass the violets exhale fragrance. Shortly thereafter, like white ribbons, the rows of cherry trees band the sunny landscape through which thrill the warblings of larks. In the fruit garden, the apples are already budding forth rosy-red and with the pear trees they close in May the blossoming period that had been ushered in during

in our gardens. Japan and China have sent their ornamental cherries, and North America an abundance of splendidly flowering apples. From eastern Asia the most beautiful apricots, cherries, and pears have been obtained. But the Near East, too, has given us very handsome pears and apples. Their near relatives, the crab apples, *Aronia*, and the Rocksprays, *Amelanchier*, come for the most part from the United States. They are all counted among the most beautiful small trees and shrubs of Spring, which often in Summer and Autumn reward us doubly for the slight pains of our care with their splendid loads of fruit and their foliage gay in its coloring. The artistic plasticity of the petals, their small forms, the charming and rhythmic confusion of the stamens with the anthers, which in life are colored now purple, now gold, and all the niceties of the fruit capsules and styles, are generally overlooked when we stand admiringly before the wealth of the trees' blossoms.

Like the bee searching for nectar, our eyes must follow from blossom to blossom and gaze deep down into each of these miracles.

CHERRIES, PLUMS, AND THEIR RELATIVES (*Prunus*)

When in the last days of November, 1914, I was ascending from the hot valley of the Salween to Paszhoeh toward the Irrawaddi in the remote southwestern part of China, out from the darkness of the interwoven canopy of trees of the primitive sub-tropical forest there smilingly greeted me boughs of pink, announcing the bursting of Spring in this strange world. After long continued exertions my companions and I succeeded in bringing down

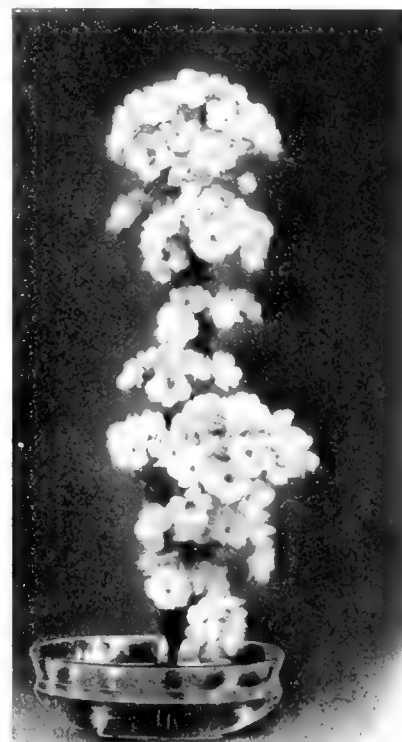
specimens of these blossoms. It was *Prunus cerasoides*, or Puddum, an ornamental cherry, which is spread throughout the Himalayan region and as far as western China. It meant an experience to me. It recalled all the vernal splendor of my native home—how often I had enjoyed it in the time of cherry blossoms and on the high bank of the Danube at Vienna or on the mountain road.



Japanese double flowering cherry, Kotugen Zakura.

March by the peaches and apricots in bright pink. Entire regions are famed for their fruit blossoms, in almost all large fertile river valleys and especially in the grape-cultivating regions on the Rhine and the Danube. In every place, where the cultivation of fruit is at all possible, the landscape is enriched.

But all that they offer is greatly augmented and refined by those peaches, plums, apples, pears and allied trees which we raise only for the sake of ornament, without thinking of their gifts of good tasting fruit. From all parts of the north temperate zone have these ornamental small trees come to accentuate and prolong the Spring



Japanese double flowering pyramidal cherry, Amanogawa Zakura; translated, Heaven's River or Milky Way.



Prunus cerasoides, Puddum. The photographs produced herewith taken by the author. F. B. Meyer.

How a whole nation is raised to ecstasy is illustrated by the case of Japan. When the Spring Cherry, *Prunus subhirtella* blooms there in its characteristically weeping-form variety, *pendula*, a folk festival is observed. *Prunus yedoensis* or *paracerasus*, which is lacking in scarcely any park or temple garden, and at the height of whose blooming the Mikado ordains a holiday, rivals it for the people's favor. In time of flowering there follows upon this the numerous wild and cultivated forms of *P. serrulata* and of *P. Lannesiana*, both of which often pass among us incorrectly under the name *P. pseudocerasus*. To be sure I was not able to observe the Japanese ornamental cherries in my native home, but I learned thoroughly to know them and to prize them during the four Spring seasons I passed in the Arnold Arboretum at Boston. Here since 1890 the wild forms of *P. serrulata*, the variety *sachalinensis*, better known as *P. Sargentii* (Sargent's Cherry), has been successfully naturalized and every year its magnificent pink blossoms expand, along with the bronze-colored young foliage, to the delight of thousands who stream into the Arboretum at cherry blossom time. The following garden forms of *P. serrulata*, which belong to the variety *sachalinensis*, are quite wonderful: *alba rosea* (Shiro-fugen) pink buds, open flowers with two carpels, shaped like leaves, in the center; Fugenzo (James Veitch or *Veitchiana* of the gardens) like the preceding but rose-white blossoms; Hisakura Kirin, very large, compactly double, pink, late blooming; Seckiyama, bright pink, large, double and, according to E. H. Wilson, who has studied these forms in detail, perhaps the most lovely double ornamental cherry. To *P. Lannesiana* belong, according to Mr. Wilson, the following magnificent forms: Sumizone, single, white with pink-blush, fragrant, very large; Fukwokuju, first light pink, then white, double; Hatazakura, white with pink, semi-double, somewhat like an apple; Jonior, pure white, rather loose, strongly fragrant; Oyon, semi-double light pink; Ojochin, semi-double, light pink, very large. Not without mention should remain *P. Sieboldii*, which in the gardens passes as *P. pseudocerasus* var. *Sieboldii* or var. *Wateri*, as well as under its natal name, Naden. The blossoms are pink, quite double

or semi-double, the last being the case with the kind called Yohiki. With this, of course, the number of Japanese ornamental cherries is not exhausted. Their history is highly interesting and is treated in a discourse written in German by M. Miyoshi, which appeared in 1916 in a Japanese scientific journal at the same time that Mr. Wilson published his work on Japanese cherries in the Arnold Arboretum. According to Miyoshi the kind Fugenzo has been known in cultivation for more than four hundred years while a work of the year 1681 already takes



Japanese weeping cherries, pink, single, *Shidare-Higan-Zakura*, and *C. subhirtella pendula*

account of forty sorts, of which twenty-one have been kept till the present time.

The group of peaches and apricots at this time I can only briefly touch upon. Among apricots should be noticed as a lovely Spring bloomer, *P. sibirica*, the Siberian form of *Armeniaca*, whose precocious splendor, to be sure, only too often is severely damaged by late frost. The same is true in the case of the Manchurian form, *P. Mandshurica*. In the Vienna Botanical Garden there stood until about a decade ago a lovely tree of the Siberian apricot, which, according to my observation through a number of years, used to bloom very nicely in March. I sent some seed of it to the Arnold Arboretum and was able in 1916 and 1917 to see plants,



GUI-TOI
Tears of the Dragon

Graceful, but slow growing, *Malus Halliana* or *Parkmanii*.

raised from the seed, in bloom, which, however, were not as effective and rich as in Vienna. *P. Sibirica* passes at times as *P. Mume*, also the genuine Japanese apricot. It resembles our *Armeniaca* very much in foliage but has rougher pits from which the flesh does not separate. Grand too is the cherry almond, *P. persicoides*, whose leaves remind one more of the almond *P. communis* while the fruits resemble more those of the peach, *P. persica*. A very good early almond which I was able to study for years in Vienna is *P. Fenzliana*, disseminated in the Caucasus and the Amato. It is lower and more spreading than *P. communis* and endures right well in regions of warm summers. The ripening of the wood and of the blossom buds in the case of all these early bloomers is very important. We must always call attention to the splendid double forms of our peaches. Kinds like *dianthiflora* and Clara Mayer have in their color, tones which lighten intensely, a quite extraordinary effect in the garden.

The plums are no less deserving of special attention. So above all are the American cherry plums like *P. americana*, *P. nigra*, *P. hortulana* and its related forms. A peculiar and very rich blooming type from China and the Himalayas is *P. salicina* (*P. triflora*). The cherry plum, *P. cerasifera*, also must always be thought of, especially in the exceedingly decorative purple-leaved form, var. *Pissardi*, to which are closely related the forms *Hessci*, *Purpurea* and *Blierea* which in the deep variable tones of the young foliage, combined with the pink of the blossoms, mutually strive to surpass one another. The last named is distinguished by its semi-double blossoms, while they are slightly more filled out in the form *Moseri*. Even with this the chapter of early blooming prunuses is far from being completed.

THE APPLE (*Malus*) AND THE PEAR (*Pyrus*)

The East Asiatic and North American ornamental apples are certainly not inferior to the Japanese cherries in beauty of blossom. They particularly surpass them in duration of bloom and besides, bestow upon us in the Autumn a wealth of variably formed and variably colored fruits, which often last throughout the Winter. Since the blossoming of apples begins later than that of cherries they do not so often suffer from late frost. In reference to the charms of their habits the ornamental apples make almost more of an appeal than do the ornamental cherries. On all these grounds they deserve our respect in the highest degree and they should not be lacking in any garden.

One of the most beautiful ornamental apples is *M. baccata*, the area of which extends from eastern Asia through China up to the Himalayas and accordingly appears in various wild forms. It is known as the Siberian apple and its fruit is esteemed in making jelly. In its form *mandshurica*, *M. baccata* blooms as the first of all ornamental apples and almost at the same time the blossoms of a hybrid form open, long known in cultivation under the name of *M. cerasifera*, which now must take the new name *M. robusta*. It represents a cross between *baccata* and *prunifolia*. *M. Halliana* *Parkmanii* is the best known Chinese sort, the type of which, to be sure, has not yet been found in a wild state in China. On the other hand the variety *rinki*, known in our gardens as *M. Ringo*, has been met with in wild state in central and western China. It has been cultivated by the Chinese for centuries and is recognized as the most important apple of eastern Asia. In my opinion the most beautiful Chinese ornamental apple is unquestionably *M. Halliana* in its double form *Parkmanii*. I have so often admired its wonderful rose-red pendant blossoms that I should like to see it

again in every garden in our country. The double form in Japanese gardens goes under the name *Kaido*. A very noteworthy hybrid with *baccata*, which originated in Germany, is *M. Hartwegii*. Striking is the newer Chinese, *M. theifera*, which owes its name to the fact that Chinese country people make the so-called red tea from its leaves. This sort in the bud state is rose-red, later nearly white; its growth is spare and the bushes develop a large number of thorn-like twigs which bear the flower clusters.

But China is rich in quite various types of apples. There are, to mention only such as have already been tried in cultivation in America and England, and in part have been introduced into our own country, also, *M. kansuensis* and *M. transitoria*, which belong to a group of sorts that are related to the American *M. fusca*. Another type I have myself observed wild in Yunnan: *M. yunnanensis*. This sort reminds one in its foliage of *M. Tschonoskii* which came to us from Japan a rather long time ago. It leads to a certain extent to an ever-green type *Docynia* which is distributed in the Himalayas and western China and whose magnificence of bloom I learned to know on my travels in Yunnan; it is distinct from genuine maluses. These brief references may pass for an indication of how rich is the Chinese plant world in peculiar forms, deserving of cultivation.

From Japan are to be mentioned for the smaller gardens, *M. Sargentii* and *M. Sieboldi* var. *calocarpa*, as *M. Zumi* also. *M. Arnoldiana*, belonging in the form cycle to *M. floribunda* is worthy of the same note. *M. ioensis plena*, the double form of the prairie apple, from North America, is unsurpassed. Its large, fragrant and compact flowers remind one of small roses. Very decorative is one from the Caucasus, related to our wild apple, *M. Niedzwetzkyana*, which on account of its magnificent red colored foliage and blossoms truly deserve a better name. Its large purple apples are also striking, though its habit unfortunately is very sparse and unlovely, so that its decorative value is impaired.

In spite of the fact that apples and pears are in every way quite distinct they are often still classed under the name *Pyrus*. Real pears, however, are very easily distinguished from apples in leaf, blossom, and fruit. They are in general not as ornamental as the apple but they also possess their charms in the blooming season. Even the common wild pear, *Pyrus communis*, attracts our gaze when blooming. From it for the most part are derived our cultivated forms, in the origin of which, however, the snow pear, *P. nivalis*, has had a part. This is still found occasionally wild in old country gardens. Old trees of it have a very picturesque appearance and with their large white blossoms are charming. The west Asiatic willow-leaved pear, *P. salicifolia*, like the olive-leaved pear, *P. clavigrifolia* also from the Caucasus and southern Russia, is very charming in spite of its rather small blossoms. From China and Japan we possess now a whole series which, as stocks and even on account of their fruits, play a role. Even though the fruits of the Chinese kinds by no means have the melting juiciness of our cultivated pears, but rather, in spite of their often considerable size, are quite stony, one learns to prize them for their keeping qualities, for when stewed they make an excellent preserve. (Continued in the September number.)

The flowering cherry is effective in landscape compositions. Observe how profuse is the flowering of the tree, illustrated on the front cover, in front of the little building and of the one at the rear. The cover illustration, and the other illustrations of ornamental flowering shrubs are produced, in connection with this article, through the courtesy of A. E. Mohbert.

The Iris Among the Ancients

IN the remote time of Greek mythology the Iris was a gracious goddess, messenger of the gods, who by spreading out her scarf produced the rainbow. The ancient Greeks, struck by the diversity of colors in the perianth of the flowers of the plant which forms the subject of this article, gave to it the name of the charming goddess who personified the rainbow.

The Greek physician Dioscorides, of the first century of the Christian era, declares moreover that the word Iris signifies "rainbow"; the plant bearing this name, he adds, owes it to the varied colors of its petals.

At that period the Greeks and the Romans employed the dried rhizomes of the Iris in perfumery and in medicine. They made use of it to combat coughs and colics, against the bites of serpents, as a purgative, etc. Pliny and Dioscorides point out that the rhizomes most esteemed came from Illyria (*I. germanica*); in the second rank were placed those from Macedonia (*I. florentina*), and finally, in the last place, those from Lybia. Macedonia and Corinth were then celebrated for their perfumed unguents. According to Pliny the better oil of Iris came from Pamphilia; that from Cilicia also was very highly esteemed. The German botanist, Sprengel, sees, in the Iris of Dioscorides, the species *germanica* and *florentina*.

If in the first century the rhizomes of the Iris were imported into Italy the plant was already known there and had a place in the gardens. Pliny states that it did not enter into the making of garlands, probably because of the fragility of the petals. He describes minutely the ceremonial pulling up of the rhizomes, which were lifted up toward the sky immediately they were taken from the earth.

On the contrary the Egyptians, in the Greco-Roman period, who cultivated the *Iris sibirica*, used it to make garlands.

What were the Irises cultivated by the Greeks and the Romans? They cultivated, beyond doubt, the *I. germanica*, native to central Europe, which grows in abundance in a wild state in Dalmatia (ancient Illyria). It is evidently this species, of which the colors recall the rainbow, that brought to the genus its name.

According to Fluckiger and Hanbury *I. florentina* and *pallida* (from the south-eastern parts of Europe) must have been introduced into Italy in the Middle Ages. The Italian agriculturist Crescenzi (13th century) actually treated of the white Iris and of the purple, and indicates the manner of preserving the rhizomes. His contemporary, the celebrated poet, Dante, author of the *Divine Comedy*, reports that upon the ancient arms of the city of Florence was a representation of a white Iris upon a red escutcheon, which was, after the civil wars, changed into red Iris upon a white escutcheon. The culture of the *I. florentina* spread rapidly to such an extent that Valerius Cordus complained, at the end of the sixteenth century, that the Illyrian drug had been replaced by that from Florence. According to the statement of Mattioli the plant must have been naturalized in Tuscany in the middle of the sixteenth century. Clusius claims that it was rare in the gardens of the other countries.

In the twelfth century, in Spain, the Arabian agriculturist Ibn-al-Awam described the culture of the Iris (Little Violet-colored Lily), which multiplies from the roots in May; the translator wrote in a note that this Iris, of small stature, was probably the *I. pumila*. The Arabian physician Ibn-el-Beithar (13th Century) says that the *Irissa* is the violet-colored Lily, and he points out its medicinal properties.

In France the culture of the Iris goes back certainly to a remote period; the beauty and the oddness of its flowers, the perfume of its dried rhizomes, employed since time immemorial in domestic economy (lixivation, heraldry) must have caused it to be admitted into gardens. In the eighteenth century, under the name of *Gladiolus* (in 1600) Olivier of Serres still wrote *Gladiolus* or *Iris*. The emperor Charlemagne enjoined the cultivation of the Iris upon his attendants.

The flower is found represented upon the scroll work of monuments of the Roman period and of the end of the Gothic period. The flower of "Lys" figured upon the coats of arms of the kings of France, from the time of Louis VII in 1180 (it had been adopted by other royal houses of Europe also and by a great number of families belonging to the French nobility), does not resemble a fleur-de-lis. Modern authors see rather, in the golden Lily of coats of arms, the yellow flower of the *Iris pseudacorus*.

It is then not rash to affirm that by the Middle Ages the culture of the Iris had already been widely spread in France. In the sixteenth century the species known were sufficiently numerous. By consulting the works of botanists of the time, up to G. Bauhin (*Pinax* 1623), we have found, described or figured, the following Irises:

I.—Iris rhizomatous:

- (a) Apogon: *I. fatidissima* L., *I. pseudacorus* L.; *I. graminea* L.; *I. sibirica* L.; *I. spuria* L.
- (b) Oncocyclus: *I. Susiana* L.
- (c) Pogoniris: L.; *I. aphylla* L.; *I. germanica* L.; *I. florentina* L.; *I. pallida* Lam.; *I. pumila* L.; *I. squalens* L.; *I. sambucina* L.; *I. variegata* L.

II.—Iris bulbous: *I. alata* Poir; *I. Xiphium* L.; *I. xiphoides*, Ehr.; *I. Sisyrinchium* L.; *I. juncea* L.

III.—Iris tuberous: *I. tuberosa* L.

This is the total of twenty species. Thus, as witness the works of Clusius and of G. Bauhin, where Lamark found described several varieties of *I. germanica* and of *pumila*, the cultivation of these two species must be ancient. The Mourning Iris or *I. susiana*, so curious because of its form and its sombre coloring, native to Persia, of which we reproduce the figure according to Clusius, was sent from Constantinople to Vienna in 1573 to this botanist. The Iris from Persia (*I. persica* L.), bulbous, is cited in 1629 by Parkinson.

It is from the end of the sixteenth or from the beginning of the seventeenth century that the culture of bulbous irises has been developed in Holland. Clusius, whom Olivier of Serres (the Father of French Agriculture) sur-named in 1600, the Father of Flowers, must have introduced and propagated numerous species when he was in Leyden. The attention of Dutch, English and Belgian horticulturists was directed principally to the bulbous species (*I. xiphium* and *I. xiphoides*) of which they obtained, by sowing, numerous varieties. De Grace announced (Bon Jardinier, 1802) that in the eighteenth century the Dutch were selling, by names and colors, varieties of *I. xiphium*.

In France, in the seventeenth and eighteenth centuries, were cultivated, in the gardens, rhizomatous irises (*I. germanica*, *I. pumila*, *I. florentina*, *I. Susiana*, etc.) and bulbous irises (*I. xiphium*, under the name of Spanish Iris, *I. xiphoides*, under the name of English Iris and the Persian Iris). Irises with rhizomes were multiplied from seed or, more often, by cutting up the rhizomes. A

(Continued on page 232)

The Rock Garden

ARTHUR SMITH

WHEN people begin to realize the results which are to be obtained by gardening exclusively with hardy plants, the ever-changing variety of beautiful effects produced for the greater part of the year, and the boundless possibilities connected with the system compared with that of using tender bedding plants, they desire to bring into their gardens some of the many enchanting subjects which find a congenial home among rocks, especially those inhabiting alpine situations. Hence a rockery is made with the idea of accommodating them.

A rockery may cover only a few square yards, or one can form a rock garden of any extent in which may be created all kinds of situations, variations in soil, aspect, etc., suited to the needs of plants growing in mountainous districts, which needs distinctly differ in different species, whether from arid Arizona or from mountains above the tree line close to perpetual snow.

Whatever the extent of rock-work we propose to undertake, the underlying principles of construction are the same. That these principles have not always been realized accounts perhaps for the fact that there are few matters connected with horticulture wherein there have been more failures and ridiculous results than in the formation of rockeries.

The use of rocks in connection with growing plants is, as far as possible, to create conditions similar to their native habitat, and also to counteract to some extent the adverse conditions brought about by a distinct change in that habitat.

One of the most important points connected with the naturalization of plants is to produce as far as possible the environment in which the plants have been in the habit of living. The fact that a plant has been growing under certain conditions for thousands of years and is found in no other, is evidence that those conditions are the best for its constitution. Therefore if we wish to grow the many beautiful subjects which are to be found upon the mountains we must give them a home which reproduces to the greatest possible extent that from which they have been removed, and at the same time protect them from the adverse effects which may arise from the differences in their new environment.

The mistake is often made in thinking that these plants grow upon rocks. It is true that a mere passing glance might lead one to suppose such to be the case, but if closely examined it will be found that their roots go down deeply into the fissures of the rocks, and in cases where these fissures have been opened up roots have been traced down many feet and are thus safe from cold and drought.

This prevailing idea that rock plants grow upon rocks and that therefore they require little or no soil no doubt accounts for the method frequently employed in making rockeries, which is to dump a few loads of stones upon the top of hard ground, form them into a sort of pyramid, poke a few spoonfuls of earth between the stones and ram in the plant with a stick. It is true there are one or two species which will more or less survive this treatment, such as *Sedum acre*, and *Semprevivum tectorum*, but one does not go to the trouble and expense of constructing rockeries merely for subjects like these which will grow in any poor, droughty situation, although they may rightfully have a place there.

The first point to be considered is the site. This should not be near trees because their roots will inevitably find their way into the soil of the rock garden and rob the

plants of food and water; the drip from trees is also very detrimental. The situation should be an open one away from tall buildings.

The realization of the advantages of having the rock garden in an open situation has perhaps led some people to construct them on a lawn, fully exposed and therefore part of the landscape. However ideal may have been the construction and planting of a rock garden, having a rockery or a rock garden standing out upon a lawn is a fundamental mistake, inasmuch as a condition is created which cannot possibly harmonize with any other feature of the garden and a discordant note is thereby established.

Of course, one has to make the best of the conditions which they possess, but if possible a garden of this kind should be so enclosed by natural planting that from the outside it will harmonize with, and appear part of, the general landscape scheme—provided the latter is upon naturalistic lines—and it is possible so to arrange matters that it will appear to be nothing but a somewhat more pronounced promontory of a boundary planting, and the rock garden itself will not be seen until one is actually in it.

With the latter idea in mind—although it is only one of many possibilities—such promontory may take an irregular pear shape in outline with the narrowest portion in connection with the other planting. This narrow connecting neck should gradually widen out to any width, and extend to any length, the room at disposal or the desires of the owner may require.

As soon as the neck widens out the formation of banks should commence, bifurcating to any width desired and meeting again at the other end. The banks should be irregular, obtuse slopes, but the out line of the exterior can be smoother than the interior.

The planting on the outside of the banks should be of a shrubbery, evergreen nature, conforming to that with which it is connected. The species used may be, however, of the dwarfer kinds, especially on the higher parts of the bank, so as to avoid any sudden elevation of the sky line, so that from the outside it should have no conspicuous difference from the other planting in its vicinity. The selection and placing of the material used should be considered from the point of view of the height reached by the different species, and upon the bank itself nothing of a coarse growing nature with far reaching roots is advisable. If a border of herbaceous perennials is in front of the planting to which this is connected such border should continue. Properly masked entrances may be made at each end, or only one entrance may be provided for.

The interior will present a more or less irregular shaped oval surface surrounded by the banks. Water effect can be provided for by means of having it issue from between rocks in the form of a spring at one end, continued along the center in the form of a winding rivulet, or enlarging into a pool, and disappearing into a drain at the other end.

As regards soil, most plants will do well in a sweet, fibrous loam, and for rock plants, especially alpine, one composed of one part fibrous loam, one part leaf mold and one part sharp grit is advisable. The grit should not be round smooth pebbles but riddled broken stone and should vary from the size of cabbage seed to that of pigeon eggs.

As regards the kind of rock to use, that natural to the district and nearest at hand—provided it has no objection-

able features—is the best on economical grounds. Rock which crumbles when exposed to the weather should not be used, nor should very rounded, smooth rocks, as the latter are difficult to make and keep firm. The use of pieces of concrete, clinkers, brick, broken columns, or any kind of artificial stone should not be thought of.

A more or less soft stone is not suitable however well it may look at first, because frost will cause it to break into chips and even crumble into powder. It is necessary to be particularly careful with limestone on this account. No stone varies more than this; some kinds go in a year or two, while others are quite durable. If it has a dull, powdery appearance it should be rejected, if bright and sparkling it may be used, but even the hardest limestone had better be left out of gardens near towns, especially in smoky manufacturing districts, as it is readily affected by sulphuric and other acids.

In some parts limestone is abundant and there is a natural temptation to use it if quarried nearby, as the cost is low. One great thing in its favor is that the majority of rock plants like it and in this case their roots cling to it with an intimacy which suggests active favors. Alpines are more markedly lime lovers than others, but there are some, however, which dislike it. Sandstone is good, suits everything, has an excellent appearance, and is durable.

While places are to be found for rocks of all sizes and shapes, they should generally be somewhat rectangular and longer than wide, so that they can be bedded securely with little trouble, and stones of more or less flatness fit in more readily with the scheme of work than those tending to roundness. It is not suggested that the paving-stone form is ideal, and dressed stone would look too stiff.

When arranging the rocks they should be placed in as natural a manner as possible. Start from the bottom and build upwards, fixing the rocks firmly so that one can stand upon them when planting, weeding, etc. They should slant so that the exposed portion is at a higher elevation than that which is buried, this will cause the rain to run back to the roots instead of dripping over and spoiling the plants below. It is very important to take care and fill up the soil well behind each rock as well as under it as it is laid in position. Make all quite firm as the work proceeds, for if this is not done the result will be that after heavy storms either the rocks or soil, or both, will sink, and by so doing cause a great deal of mischief. Placing the soil in position and then putting the rocks more or less on the top is the least desirable method of building a rockery.

There is nothing in mountainous districts where alpine conditions prevail so likely to mislead as the arrangement, or want of arrangement, of the rocks. Some of the ugliest and most desolate rock gardens are the result of attempts to imitate the savage chaos of alpine boulders, which is supposed to be favorable to plant life because some alpine plants are found to be thriving among them at elevations of ten thousand or more feet. Now we can in our gardens provide an absurd and insignificant imitation of this chaos, but we cannot provide the elevation with the pure mountain air, the sustained Winter frost with its constant snow mantle, and the continuous Summer moisture. The strewing of boulders at random upon the surface will enable a few stone crops to flourish among them, but most other plants worth while going to any trouble for will take the first opportunity of dying, and a chaos in a garden devoid of vegetation is scarcely less ugly than a rubbish heap.

In studying the rock work of Nature in its relationship to plants we should know the actual function which rocks should perform in a garden, and particularly we should bear in mind the frequently ignored point that in making

a rock garden we are not constructing a garden for the purpose of exhibiting rocks, but for the purpose of growing rare and beautiful plants. If this is kept in mind one can gain many valuable hints from alpine districts. The first of these is that all rocks should be so placed that the roots of plants near will be able to run under them and so get protection from drought in Summer and cold and wet in Winter. Some ambitious rock gardens may be seen with the rocks driven down perpendicularly into the earth, in which position they are practically useless. Those who have been in alpine districts will have noticed that the fine specimens of plants are to be found—often in conditions not otherwise favorable—at the edge of a great boulder which slants into the ground, so that the roots can run under it and get coolness and shelter as far as they are likely to penetrate, which is usually many feet; and it is in the slanting fissures of rocks that many of the more difficult plants grow best and most abundantly. Therefore we should never place a rock without thinking of the plant which is to profit by it, nor should we consider rocks apart from roots, for the sole function of rocks in a rock garden is to protect roots and not merely to look rugged and picturesque; although the gaining of picturesque need not be overlooked.

According to the size of the rock garden, ridges and bays may be formed, and the larger the area available, the deeper the bays; and the deeper the bays the longer the ridges. Looking into a bay gives a pleasing illusion of distance, also this method gives more space for plants upon a given area of flat surface. Further, this arrangement affords more varied aspects in relationship to the sun, and therefore provides positions suitable to the varying likes and dislikes of plants as to shade or the reverse.

Arranging the rocks so as to form pockets is advantageous because we can then make such additions to the soil as will suit the plants placed in any particular pocket. For instance, some like plenty of lime, which can be given them in their own compartment; others are to be found which like a soil composed of three parts leaf mold or peat, and so on. When lime is added it should be in the form of broken lime mortar, or lime rock; ground, burnt, or slaked lime should never be used for this purpose.

When placing the plants in their positions one must have a clear idea of their characters, not only as to their soil requirements, but if they like or dislike full sun; if they are vigorous and comparatively rampant or otherwise. Disregard of the latter point has frequently caused dense, low-growing little plants to be soon killed by those of a taller and spreading character. It is best to give the most vigorous species a section by themselves, or plant them at the lower levels and the weaker ones above. If there is only room for a small rockery it would be preferable to confine the selection to the smaller, choicer kinds and leave the more rampant ones out altogether.

After planting, the plants should be surrounded by small stones or broken rock, this keeps the soil cool and also minimizes the adverse effects of wet in the Winter.

Growing alpines require perhaps even more of that patience which one must have in all horticultural matters. Some species may take several years to become established, so we must not throw a plant out because it does not thrive immediately, for so long as there is life there is hope.

While there are some species of alpines which have defied all attempts at growing them in captivity, the majority of them can be successfully made to thrive. The greatest trouble is with the wet in Winter. In their native homes the seasons create two distinct conditions: a Summer of about three months and a dormant period for the remainder of the year, during which they are continuously

covered with a mantle of dry snow. Alpines are never killed by cold Winters but by wet ones. The ill effects of wet in Winter may be prevented by covering them with sheets of glass. Some have erected glass houses over their more delicate alpine, so constructed that they can be taken apart and stored away during the Summer.

One of the secrets of success with many species is to give them an annual top-dressing or "earthing up" of gritty compost. Some of them are constantly being subjected to the same kind of treatment by Nature, for in Spring the melting snow carries down earth, grit and stones on to them. Species like *Daphne*, *Alyssum saxatile* and *Iberis*, to mention well known plants—which are true alpine, although not generally known as such, especially require this treatment. It is within the experience of most people that these plants become in a few years "leggy," if they do not actually die out. This is caused by their habit of growing out of the soil, which habit they have no doubt acquired in consequence of having been accustomed to the natural top-dressing given them by the melting of their own mountain snows. They have learned that if they did not rise up they would be buried under the annual deposit, and they have not yet been long enough in cultivation to learn to adapt themselves to the change in environment.

Perhaps the most interesting and instructive method of working up a collection of alpine is to go to the mountains and collect them, as there would be in this course the distinct advantage of seeing them in their natural habitat. Seed should be collected as well, for there are many species which do not take kindly to removal. One important point which will be realized by anyone taking a mountain trip is that various distinct situations exist where some plants do better than they do in others, and also that some species grow under certain conditions and in no others. For these reasons, in forming a rock garden, it should be so laid out as to present varying situations, and if water be available it will be a distinct advantage to cause it to emerge from a position on a bank in the form of a natural spring and trickle over the rocks so as to create boggy places like those which frequently exist in the mountains and by this means the range of plants which may be successfully grown is greatly extended.

It must be borne in mind that the word "alpine" is not confined to plants native of "The Alps," as alpine conditions exist all over the world, from mountains which arise out of tropical plains, on towards regions of perpetual ice; before the latter is reached alpine plants will be found at the sea level. From New England to the Pacific coast this country has many alpine situations and the Mt. Rainier district is especially rich in alpine flora, and most of the American alpine are untouched, and for the most part unknown, by American gardeners. A number of American rock plants have been used for years by British rock gardeners, and seeds of these and other species can be obtained from specialists in that country.

While, as before stated, a rock garden may be caused to afford conditions which distinctly differ so that the garden can accommodate a wide range of species, we must not think of planting in it low and herbaceous subjects which have their proper place in a border of herbaceous perennials, as plants of the latter kind are not appropriate to a rock garden. The fact that an alpine plant is sometimes grown in a herbaceous border, must not blind us to another fact that the herbaceous border and the rockery represent two distinct phases of hardy flower gardening and attempts to combine the two always end in failure.

Besides a rock garden proper, there are many other situations which can be beautified by the use of true rock plants, among which may be mentioned, steps, uncemented

walls, embankments which are faced with loose stone, and such like positions. Where possible it is always well to have a good thickness of suitable soil at the back of stones in the above situations, and it is better to have the placing of the stones and of the plants go on simultaneously.

(Continued in the September number.)

IRIS AMONG THE ANCIENTS

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number of varieties must have been produced in cultivation.

If Holland and England have played a preponderant role in perfecting bulbous Irises French horticulture can claim the honor of having been the first to effect upon a large scale the creation of numerous and magnificent varieties of "Garden Irises."

In 1922 De Bure, who died in 1842, inaugurated the era of raising rhizomatous Irises from seed. He made his experiments at that time out in the country and in his garden at 13 Hautefeuille St., Paris. He obtained a beautiful collection of new varieties of which one, more remarkable than the others and much appreciated at the time, was called *Iris buriensis*.

Toward 1839 Jacques, of Neuilly (Seine), also sowed seed of the Iris and possessed an important collection of new varieties of his originating.

From 1836 Lemon the Younger, a professional horticulturist, 3 Denoyez St., Belleville, commenced to make sowings, continued them during following years and had, in 1839, 150 varieties, of which 100 were choice.

Then Pele, horticulturist, Paris, after he had united the most beautiful known varieties, effected in his turn some sowings and augmented the number of beautiful varieties to which preceding horticulturists had accustomed the public.

On the other hand Loiseleur-Deslongchamps, in his garden, by consequence of natural sowings of the seed of *I. squalens* and *variegata*, had obtained some beautiful varieties.

The names of De Bure, Jacques, Lemon and Pele ought to be remembered; they are the first great French growers of Iris from seed.

To obtain new varieties the horticulturists of the first part of the nineteenth century sowed seed from species that produced it with sufficient regularity. Their "Garden Irises" descended from *I. variegata* (See the illustration), *plicata*, *sambucina*, *squalens*, *svertii*, *pallida*, *flavescens*, *urida*, etc., all of the *pogoniris* section or the Bearded Iris. It is in error that toward 1837 or 1838 there was attributed a part to *I. germanica* in the production of new varieties. This species fruits rarely and in 1840 Lemon declared that he had not been able to obtain seed from it since he had been handling Iris seed. Isole, *I. germanica*, almost never gives seed; it has since been observed to form seed when it is associated with other species.

The numerous varieties obtained, remarkable for the delicacy of their shades and the richness of their coloring, have come from the seed of different species; moreover, so far as we have been able to judge, it seems that the first men who sowed the seed of the Iris did not give themselves to hybridizing, at least not in the greater part of their career.—Tr. from *Revue Horticole* by F. B. M.

I would rather attempt and fail a thousand times at something in which I had put my heart than to win with a single bound at something that held only some temporary thrill. Big, bold things! They are the only inspirers. In them may we delve and sweat and thrive, for though we may temporarily fail—we can never lose. —George Matthew Adams.

Gardening in South Carolina

ANDREW ANDERSEN

When I was called upon to go to South Carolina to plan and plant an estate for the owner of a cotton mill town, little did I know of what was ahead of me in the way of climatic conditions and the labor situation in general. It was my first attempt in the South and amusing indeed is it—to say the least—to see the native negro go about his work. Slow and lazy as he is, he, of course,

thing else. The rose bug is an unknown pest here. I am growing hybrid teas and a few teas only, and such climbers as Marechal Niel, Gloire de Dijon, the Van Flet, Tausendschon, American Beauty, and Silver Moon, the greatest of them all. A snapshot of a rose garden planted in November and taken the following year in May is shown on this page.

Flowering shrubs such as magnolias, lilacs, spireas, weigelas, deutzias, and a score of others are practically flowering at the same time, but doing fine as they flower in March or April. Ahead of these come the forsythias, bush honeysuckles, azaleas, and not uncommon is it to see these poor harbingers of Spring being destroyed by a February sleet storm, magnolias included.

It is not unusual to see wonderful specimen gardenias, and they, by the way, flower twice a year. Envyonous jap, with its beautiful foliage and red berries is another wonderful lawn specimen in this locality. The orlanders are attractive for the same purpose and spread immensely in a few years time, and last but not least I want to mention the crape myrtle, another decoration for the lawn and just coming in when flowering shrubs are scarce.

Shade trees such as Norway maple, European linden,



A view of the rose garden on the Mebane estate, Great Falls, S. C.

knows more or less how to grow cotton, or can at least plow and apply the fertilizer to the fields. Most of the plowing I have seen, however, consists mainly of scraping the surface which is not exactly one of the best methods for successful farming. Cotton is the watchword, though one may see a good stand of corn or wheat occasionally. As yet I have not seen a good pasture.

I want particularly to tell you a little about the gardening end of it:

For certain reasons it was not practicable to import white experienced garden laborers, so the very first thing to do was to get a gang of Africans interested in the profession of gardening, and this training was the most difficult task I have ever been up against. Such raw material has been a steady handicap to proper plantings and the



A specimen tree for Southern lawns, *Ligustrum nepalense*.

elm and plane are quite at home, and right here I want to call attention to one beautiful native tree, the willow oak, an evergreen oak so to say, with foliage resembling the laurel willow, slightly narrower, a very graceful and desirable tree for all purposes (*Quercus phellos*).

The woods are full of red cedars, hollies (large leaf) and the most beautiful dogwood I have ever seen. With this material we have made some very beautiful plantings with an occasional sprinkling of a corkbark elm and red oak.

The long leaf pine is a wonderful looking tree, but does not want to be moved, at least this is my experience with this variety of pine, and I am sorry to say that I have failed utterly!

For the plantings at the main entrances and for lawn specimens and driveways we bought nursery stock from the North. The plantings at the swimming pool are native cedars. The large tree or bush in circle of one of the pictures is a *Ligustrum nepalense*, a beautiful large leaved evergreen with its large blue berries in big clusters remaining on the tree all winter, a good specimen tree for a Southern lawn.

The spruces, particularly so, *pungens* and *pungens glauca Kosteriana*, are looking very well and making fine

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The swimming pool showing the planting of native cedars.

preparations for such. December, January and February form the planting season, but occasional hot and dry spells through this period even necessitate great care and a well established planting before hot weather sets in, is a necessity to success; otherwise failure is sure to come. Hot Summer weather begins in May and continues into November.

After all, roses are doing splendidly, better than any-

The Nasturtium

BERTHA BERBERT HAMMOND

The nasturtium or *Tropaeolum*, an introduction from South America, has long been a favorite in the gardens of our country, where it is cultivated as an ornament and also for its edible qualities. (The young tender leaves of *Tropaeolum majus*, better known as Indian Cress, are highly esteemed for use in salads; the unripe seeds are used in relishes.)

As an ornamental garden plant the nasturtium holds a high rank. Even when not in bloom, the odd-shaped leaves, the coloring which according to variety may be light or dark green, purplish green or variegated, make it quite decorative, and when covered with profusion of exquisitely formed flowers, which in variety of coloring run the gamut in all shades from creamy white through the yellow, crimson to purplish-violet shades, then these plants form a dense mass of harmonizing color that cannot be excelled. Indeed, the flowers of the nasturtium are so wonderfully and strikingly colored, striped, spotted, mottled and variegated in such a charming medley that one is ready to think like Bessie Johnson-Bellman who says:

When Flora had finished her labors
And all the flowers were made
She still had left on her palette
Many a brilliant shade.

So she gathered them all together
And added a drop of dew
And a breeze from sunny spice-land
And then the Nasturtium grew.

The twining sorts of nasturtiums classed among the best of annual climbers with their luxuriant growth are well adapted for covering fences, trellises or unsightly objects. For trailing over rough ground they are especially fine, as a planting of rows of entwining vines will soon produce wonderfully attractive carpeting. With us some long rows on a hillside where other flowers have seemed ill at ease, in a short time transformed the slope into an attractive spot and yielded besides the gorgeous display of bloom, plenty of tender cress and quantities of seeds for culinary purposes. This Spring, seeds tucked away into earthy beds in the crevices in an old stone wall, and here and there along the over-hanging borders of a brooklet and in other odd and unexpected places furnished a most interesting planting full of happy surprises. As a trailing vine in window boxes, hanging baskets or in ornamental lawn vases the showy, graceful, twining nasturtiums are excellent, and the improved drainage secured by the raised position, tends to increase the number of flowers and adds to the grace of the long hanging branches. This variety is also well adapted for use in covering rockeries, tree stumps or other similar objects with a trailing jewelled mantle, that cannot fail to beautify the surroundings.

Any number of other equally effective ways of utilizing the various kinds of nasturtiums are possible. The dwarf varieties which grow in a low brush-like form are effective as border plants or for bedding purposes. They are especially useful where space is too limited to allow for planting of the spreading sort. Even a small bed will furnish an abundance of fine foliage and gay flowers for indoor decoration. The comparatively new variegated kinds known as the silver and mosaic-leaved nasturtiums with their strikingly marked foliage are ornamental even when not in bloom. The dwarf kinds that form bushy plants about a foot in height may be used as pot plants

as well as for outdoor bedding. The new ivy-leaved nasturtiums have thick, lobed, dark-green leaves somewhat similar to those of the English ivy and bear a profusion of medium sized star-like flowers during the season. The petals of these flowers which are narrow and peculiarly notched are quite separated from each other giving the flowers a wide open airy appearance which undoubtedly suggested the name "Butterfly Nasturtium" by which this variety is also known.

The nasturtium is not at all fastidious. Given well-drained, fairly good garden soil and a sunny situation, a few weeks after sowing, the plants will begin flowering and will continue to bloom until heavy frost puts an end to the brilliant spectacle. Even in hot, dry weather, the nasturtium will thrive and bloom luxuriantly unless soil that is too rich encourages a rank growth of leaves at the expense of flowers.

For brilliant and varied display of color, wonderful shading and markings, duration of blooming season and ease of culture, the nasturtiums are unsurpassed. Few if any other garden flowers can be successfully raised with so little expenditure of time and money, for after the seeds are once planted little attention is required, though the plants respond promptly to cultivation and repay a thousand-fold by a profusion of attractive, spicy flowers from June until frosty weather, and if desired, sturdy plants lifted in the fall, or cuttings rooted in water or in sand, may be potted and taken indoors—a bit of Summer bloom to brighten wintry hours.

SCENTED MUSK

IN the vernacular, "Wot are yer bloomingwell giving us," *Florum Amator*?

To use an old saw, "All is not gold that glitters" and as far as offered seed of *M. moschatos* is concerned, all listed as such, is not necessarily scented.

Time was when I, as a kid, used to buy a fine pot of scented musk for "tuppence," but unless a new source has been discovered, I do not think it is possible in England now, not even at a "bob." *The Garden*, London, has discussed this subject more than once and only one person reported having a scented plant, a chance seedling in a bed outdoors.

If seed of the real thing were so easily obtainable, I guess *The Garden* would have run into W. & S. next door long years ago. But the trouble is that while true *M. moschatos* seed is easily obtained no seedsmen would back it to come scented. I used to grow the giant musk (Harrison's). This, too, seems to have lost its perfume, yet it was propagated from cuttings. It is years since I saw it.

It is just possible as *Florum Amator* suggests that there are two forms of *M. moschatos* but I have my doubts as to the scentless form being a run out British type; it is questionable whether seed as sold in England was ever grown in that country. Dare I hint that some wily "Yankee" put it over because it seeded more freely?

At all events, I'll just ascertain from my esteemed friend, J. M. Brideford of W. & S. where his true sweet scented musk seed comes from.

I might add that I have yet to see a plant of *M. moschatos* on this side of the water, either cultivated or wild.
—T. A. WESTON.

The Greenhouse, Month to Month

GEORGE F. STEWART

IN late August and early September, we are likely to have hot humid days and cool nights. The greenhouse man needs to be as wide-awake as ever, as at this season fungous diseases of all kinds are likely to get a foothold, and prevention is better than cure. Along the Atlantic seaboard heavy fogs are bothersome, making the atmosphere during the night quite damp. Every precaution should be taken to have all foliage in the greenhouse as dry as possible over night.

Chrysanthemums on single stems will have to be carefully looked after as regards feeding, and keeping insects in check. A careful study should be made of the proper dates to take the best bud. Chrysanthemum specialists, in their lists, generally give reliable information when they send out a new variety, and until one has his own experience with the variety, their advice should be followed. In the evening of the day after syringing, it is a good plan to take the powder duster and put some air-slacked lime in it to dust lightly under the foliage. In dull or wet days, give a light dusting of flowers of sulphur which will help to prevent mildew. Give the specimen plants plenty of room and disbud as soon as the bud can be handled. Stake or train them into position as soon after setting as possible. Feed carefully; we find the old standard fertilizer, "Clay's," as safe any any, with waterings of cow manure water.

Herbaceous calceolarias, as soon as the cool nights of September arrive, will begin to grow vigorously. Move them along into larger pots as they require them. A compost of fibrous loam, leaf mold rather flaky, osmunda fern root, well decayed barnyard manure and sand, in equal parts with a sprinkling of charcoal, we find agrees well with them. When potted, keep them close up to the glass and give all ventilation possible. Keep a light shade over them until the end of September. Stock plants of the *Stewartii* type of *Calceolaria* should be overhauled about the first of September. Remove all dead leaves and shoots, and pot them in a compost as advised for the herbaceous type. When a good soft growth is attained, cuttings may be removed and inserted in sand. Hard cuttings take a long time to root, while soft ones will root in three weeks. The old stools will make fine large specimens if potted along, and pinched several times during the Winter.

Never allow the cinerarias to become pot bound until the desired size of flowering pot is reached. Pot them in a fibrous loam, adding about a third of flaky leaves and rotted manure, and a sprinkling of bone meal. We have nice bushy plants by pinching out the heart when they are about six inches high.

Move along *Primula chinensis*, *obconica* and *stellata*, also *malacoides*. A late sowing of the last may be made around the last of August. Primulas do very well in loam similar to that applied for cinerarias.

Do not neglect the carnations which were planted early. See that they are wired, tied, and kept clean. A dusting of air-slacked lime over the surface of the bench will be beneficial. Do not think, however, of applying any plant food to them until the days are cooler. Stop all pinching of the flower stems by the end of August.

Shake out and pot up Calla lily bulbs in a rich soil to

which bone meal has been added. Leave them outdoors until there is danger of frost. Three to four bulbs to an eight- or nine-inch pot is about the right number. Of course, if bench space is available, better flowers are obtained by bench culture. The finest flowers I have ever seen were grown by a friend of mine on a solid bed.

Bouvardias that have been planted out should be lifted the last of August, or early in September. Place them in the shade until they have become established. Spray overhead lightly two or three times a day. They should be placed under cover by September 10. A fairly rich loam in which plenty of flaky leaves have been incorporated, adding sand enough to keep porous, is excellent.

A few of the late flowering cosmos may be lifted and potted for flowering indoors. They make handsome plants if they have been pinched one or twice. Choose a day for lifting them when they are quite dry at the roots so that they will transplant readily.

Early in September pot up whatever Canterbury Bells, *Campanula medium*, are required for early Spring flowering. Give them a slight freezing before housing them.

Buddleia asiatica may be potted into eight-inch pots and will make useful decorative plants during the Winter months. If one has a cold pit, batches of this useful plant may be had as late as the end of March.

Continue to plant batches of freezias for succession. The beautifully colored ones are best for late use. By keeping them just above freezing point all Winter, we can cut them as late as June.

Tritonia are very useful also for Winter flowering. About ten bulbs to a five-inch pot make nice plants. A good sandy loam is what they enjoy. The variety *crocata* is the most common one to be had.

Cut back show pelargoniums and when they begin to break, shake part of the old soil off and pot in a good rich loam in smaller pots, giving them a shift later on.

Sow seeds of a good strain of mignonette for Winter flowering; also *Calendula*, Lupin *Hartwegii* varieties, *alba*, *Celestinus*, *nigrescens*, which make handsome spikes for cutting in Winter. *Dimorphothecca aurantiaca* and the new hybrids are also attractive annuals for Winter flowering and may be sown now.

A sowing of stocks for Winter flowering should also be made at this time; also Winter flowering sweet peas in small pots. A place may be found for them after the chrysanthemums are gone.

All tender plants that are outdoors should be in a position to be housed hurriedly if a frost threatens about September 10 to 15, which is very likely to occur, about that time of the month.

Geranium cuttings, also coleus and other bedding plants should be secured by the last of August or early in September. Get as firm a cutting as possible. Give them a good watering when they are set in the sand, but do not water again until the sand gets quite dry. More geranium cuttings are lost by over-watering than by any other means.

Acacias and azaleas will be setting their flower buds, also camellias. It is better to stop feeding them with anything other than a watering of soft coal soot water occasionally to keep a healthy color on the foliage. Stimulating hardwood plants after they have set their flower

buds often causes them to drop the buds and start another growth.

Look over the begonias and where large specimens are wanted, give the larger and more vigorous looking ones another shift. Allow them plenty of room and keep well up to the light.

Continue to put in poinsettia cuttings, as late struck ones make beautiful low pans. A little heat at night in the tropical house will not be amiss by the end of August. If it grows too cool and damp at nights, fungous spots quite often appear on the foliage. It is also safer to have a little heat in the rose house at night with plenty of top air. Dust air-slacked lime under the foliage at night after syringing. Light dusting of flowers of sulphur over the bench occasionally acts not only as a preventative for mildew and other fungous diseases, but we have now found that there are fertilizing qualities in sulphur if not over done. A little scattering of bone meal on the benches will be beneficial and a little later on, a mulching of cow manure, providing that the plants are growing vigorously. Give plenty of air and water well when the manure is applied, which prevents the foliage from burning.

Plants in flower just now are allamandas, *Adamia versicolor*, anthuriums, dipladenias, *Medinilla Curtissii*, *Stephanotis floribunda*, *hamanthus*. They will finish their flowers within a short time and require drying off gradually.

Miltonia vexillaria will now need looking over and if any require potting, it should be attended to at this time. Fill the pots at least a third with drainage, as they are

shallow rooters. An intermediate temperature is what they should be given. Keep them at the closest end of the house after potting. Have them raised close to the glass and a moist atmosphere maintained. Fern root and sphangum moss make an excellent potting compost. Some people have great success by adding a little partly decayed oak leaves. Take care not to over water after potting.

Some of the odontoglossums and odontodas also need looking over for repotting, but as they flower over a long period, they cannot all be potted at once. Get them just as they are starting into growth. Use a compost as for vexillariums and treat similarly regarding watering and moisture. The temperature, of course, needs to be lower.

Some of the early flowering cattleyas are finishing up their growth. Give all the light possible without scorching the leaves. Keep *C. gigas* up close to the glass and near the ventilators, as they ripen their bulbs better in that way.

Pot vines that will be forced early will now be ripening their wood and need to be gradually dried off, but do not overdo it. Keep the wood firm.

The grapes are well advanced towards ripening and should have plenty of air. In the earlier stages of coloring a good idea is, about the hottest part of the day, to close the house down for about half an hour and lightly moisten the floor, and sweat the house slightly. This helps to bring on that rich bloom which all cultivators of the grape love so well to see. Great care must be exercised not to overdo by leaving the house shut too long, as it will do damage very quickly. These little tricks are all right if done by a careful man.

Cerastium and Sempervivum

RICHARD ROTHE

BELONGING to the order *Caryophyllea*, cerastiums are low growing, creeping Alpine plants, distinguished by silvery or grayish white foliage of small ovate lanceolate form. The handsomest of the gar-

flowers of cerastiums for near and distant effect are unexcelled.

Thriving best in rather light sandy soil and being very resistible as to prolonged droughts and mid-Summer heat, cerastiums are useful as ground cover on arid, sunny slopes. Collectors may be interested in the following species: *Cerastium alpinum*, identical with *Cerastium villosum*; *Cerastium Boissieri* and *C. grandiflorum*, the latter a silvery white, large flowering type of strong growth and about six inches in height.

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Cerastium tomentosum

den species are *Cerastium tomentosum*, a native of the mountainous districts of Southern Europe, and *Cerastium Biebersteinii*, hailing from Caucasia. In gardens abroad both have been freely used for edging and for carpet bedding. We class both among the indispensables when planting open sunny rockgardens and dry walls. In vivid color arrays, vernal, pure white is a strong note. The blossoms of rockcress, hardy candytuft and *Phlox subulata* all, vanishing away by the middle of May, those of the Cerastiums take their place. Light, fluffy, playfully moving in a gentle breeze, the glistening white masses of



Sempervivum arachnoidum

EARLY-SPRING PANSIES

When pansies are mentioned we think of the familiar *Viola tricolor* sorts, which have long belong among the most treasured of vernal plants in the garden. These, in the course of many centuries, have, through breeding of conscious aim, been perfected in extraordinary ways in form and in color and will perhaps always maintain their place in the garden.

Since a few years before the war, however, the pansy has met with a very noteworthy rival in the new forms of the horned violet, or tufted or bedding pansy, *Viola cornuta*, which not only strives, in form and in color, deceptively to imitate it, but in profusion and lasting qualities of bloom and in vigor also is superior to it. Up to the present we have for the most part learned to value the horned violet, only in its small-flowered forms, as a flowering plant of long continuance. Kinds like G. Wermig, in their deep violet-blue coloring and in their fullness of blossoming, which lasts from spring until into the autumn are quite unsurpassable. But the Wermig viola and similar sorts like Papilio still completely deserve the name violet, while the newer productions take on all the time more and more the character of pansies. The horned violet is a genuine shrub, and in these new forms are inherited all the good qualities of their ancestry. Even in an early spring as cool as that of this year the flowering of the early kinds began even in March, so that in more favorable years they right well deserve the name of "winter-blooming."

To these early sorts we should like for the present to direct attention. They are happy in any fresh garden soil, most so in porous loam and in a sunny site; only in places too dry and where the sun becomes hot is their culture not to be recommended. If it is desired to have them flower quite early in the spring they must be planted in good time in the early autumn in order that they may enter the winter as well rooted and vigorous plants. They may be left possibly three or even four years in the same place, if they are given annually, before their blooming, good liquid manure and in the fall a little mulching of well rotted manure. The growing of them from seed is just as easy and just as satisfactory as in the case of the *Viola tricolor* forms. Although the *cornuta* sorts are not yet so noble in structure of flower and in the gradations of coloring they are nevertheless being improved year by year. Had not the endeavors at breeding been disturbed by the war these new horned violets too would have been so perfected in every way that they would supplant the best pansies. But even as they are today they surpass true pansies not inconsiderably in their beginning to bloom earlier and in the longer continuance of their period of blooming. Their play of colors is not yet quite so rich, but at the same time the following list of sorts contains a rich selection of colors, to whose charming design and appealing form of flowers the pictures give testimony:

Cyclops, a quite new sort of dark and brilliant violet color, with white eye marked with black; Ice King, white with dark eye; Half-Mourning, a peculiar novelty, whose upper petals show a deep pansy-blue, while the lower ones are white; with a cream-yellow gleam and light blue lines; Jupiter, purple-violet, upper half of the flower whitish; March Wizard, soft velvety dark blue; Mars, ultra-marine blue; North Pole, snow-white; Winter Sun, golden yellow, with dark eye; Wodan, almost black. The growth of most sorts is compact as with the Horned Violet, whose characteristics especially come to the fore in kinds like Cyclops. In part the influence of *Viola tricolor* is more strongly expressed; in the rise of these new sorts it has had a part to such an extent that they may,

rightly be called the pansies of the spring. They ought to be adopted everywhere into our gardens.—Tr. from *Gartenschoenheit* by F. B. M.

GARDENING IN SOUTH CAROLINA

(Continued from page 233)

progress, and this can be said of *Nordmanniana* and *concolor* fir, *sciadopitys* white and Austrian pines and certain varieties of *Retinisporas*, *squarrosa* *Vitchii* in particular.

The perennial border gives a lot of worry—a good many choice varieties such as delphiniums, Canterbury Bells, aquilegias and anemones do not feel at home. The hollyhock is the grandest of them all and perfectly free from disease. Fairly good success can be had though with the greatest care, if you see to it that the flowering period comes in as early as possible, April and May, which are the best months for perennials and the time to enjoy them.

Now for the lawn. An absolutely perfect lawn is next to impossible, but with a large percentage of white clover and a mixture of Kentucky blue grass, red top, fescue and bent, I manage to have a fair all year round evergreen lawn, sprinklers running all of the time.

Let me say finally that one of the main secrets in this section for success is to take advantage of a good season for planting and with great care your work will be successful—if I have been partly so it is because I have followed these rules, but after all the real pleasures of gardening are to be looked for in the more moderate climates.

SEMPERVIVUM

(Continued from page 236)

Cerastium, frequently called "Snow in Summer," may be raised from seed or propagated by cuttings or divisions during Spring or Fall.

Light covering throughout northern States.

SEMPERVIVUM—HOUSE LEEK

Sempervivum, a genus of the order Crassulaceæ, with numerous greenhouse and hardy species, mostly of low growing rosette shape is a special favorite of collectors. Of the hardy kinds quite a portion endures our most frigid Winters without any protection. Nestling between the stone work of old walls or in the crevices of rocks on sunny mountain slopes and ledgy plateaus we wonder how they can exist and grow with hardly any soil.

Sempervivums today represent a strikingly interesting material of odd character for both the rockery and the dry wall. For a minimum of care we may sometime enjoy the quaint picture of a plantation in full bloom, such as depicted by our illustration.

The number of species listed in trade catalogs of course is limited. Of those I have seen, I mention: *Sempervivum arachnoideum*, *calcaricum*, *globiferum*, *Wulfeni*, *Funkii*, *tectorum*, *pittoni* and *robustum*. Of the very attractive red-leaved species *Sempervivum rubens*, or *rubicundum*, *triste* and *violaceum* seem to be obtainable.

The nomenclature of the Sempervivums is in a chaotic state.

Father had been cleaning the bedroom windows outside, when little Muriel came in from the garden, and said: "Mother, did you hear the ladder fall down just now?"

"No," replied the mother.

"Well," said the child, "it fell down and broke three flower-pots. I told daddy you'd be cross."

"Oh, dear," said mother; "I hope your daddy hasn't hurt himself!"

"I don't think he has yet," said little Muriel; "he's still hanging on to the window-sill."—Exchange.

Work for the Month in the Garden

SAMUEL GOLDING

THE work in the garden after this date, that is, during August and September, is of a routine nature, consisting of harvesting the ripened crops and encouraging in every way the growth of the plants which are for late Fall and Winter use. Plans should be made, and seeds sown for next Spring's flower garden. Early potatoes should be lifted as soon as they are ripe, and if there are signs of decay among the tubers, they should be placed thinly in a dry place with a little air-slaked lime scattered over them.

Harvest the onions as soon as the tops die off and the bulbs are thoroughly ripened. After they are pulled, spread out to dry, turning them over with a wooden rake, being careful not to bruise the bulbs, as this will impair their keeping quality. When dry, place in a dry airy shed until they can be stored away for Winter.

Celery will be growing apace and will need constant attention from now on. Keep it free from weeds; pull off the suckers or basal growths, and see that it does not suffer from drought. An occasional dusting of Scotch Soot is beneficial, and a dressing of some approved fertilizer will help to maintain a rapid growth. Watch carefully for the appearance of rust and spray immediately with Bordeaux Mixture if signs of it are found. Earth up some of the earliest at intervals, the amount of which should be determined by the expected demands.

Transplant lettuce and endive, and sow more string beans, for although it is late, should we have a warm Fall, they may mature. Also sow French forcing carrots, beets and turnips. In September prepare and sow in cold frames for successional batches those vegetables above mentioned, so that when frost threatens the sash can be placed on for protection. As soon as the onion and the early potato crops have been removed, this space makes a good place for late spinach. The prickly seeded variety is very good for this work as it is very hardy.

Sow cauliflower and cabbage in September for next Spring's use, wintering it in the cold frame.

Thin out seedlings from last month's sowing when they can be conveniently handled. At this time of the year things grow rapidly and soon suffer if allowed to become crowded.

Tie up enough endive to blanch at intervals of about ten days, to meet the demands for that time. If more than can be used is tied, it may decay, especially so if the climatic conditions are humid.

Transplant parsley into cold frames for Winter use. Give the green crops a dressing of nitrate of soda. This is an excellent stimulant but should be used with caution.

In many localities good farm yard manure is becoming more and more difficult to obtain and each succeeding year finds it less plentiful, with a corresponding increase in price. Consequently the value of a cover crop is being more appreciated and is proving a good substitute. When the land is cleared of crops sow a mixture of rye and "Hairy Vetch." This will soon make good growth and if dug or ploughed in next Spring, will ensure a good supply of organic matter and nitrogen to the soil.

Cut out all old wood from raspberry plantations. From now on and throughout the Fall until the first killing frost, the flower garden will be ablaze with a galaxy of color. The dahlia will be at home now and

should have every encouragement if we would have the best. Dahlias should have an abundance of moisture with some liquid manural waterings at intervals; if the weather is dry, dishud early, tie and stake securely. See that gladioli are properly staked, otherwise the spikes are easily ruined. Late asters, scabiosas and other annuals, will repay attention of good staking where it may be needed. This may be done early so that by the date of blooming the stakes are quite hidden by the growths. See that the beds and borders do not suffer from drought during August so they will be carried on in good condition throughout September.

Prepare the propagating bench to receive cuttings of stock for next year's bedding, including coleus, fuchsias, heliotrope, lantanas, alternantheras, and other soft stock. Sow pansies, English daisies for Spring bedding, and also a full line of perennials in the cold frames for use in the borders next Summer.

Keep the rose beds free from weeds and spray with Fungine if mildew is prevalent. Tie the ramblers in position so they can have the full benefit of sun and air, and that the wood may be thoroughly ripened as it will then be in a better condition to withstand the rigors of a severe Winter.

Any alteration in the peony garden should be done early in September in order that the places can be prepared now for the reception of the new varieties, which were probably ordered during peony time last May.

The chaste Madonna Lily should be planted as soon as possible for the best results. Many other varieties of lilies are incomparable for garden decoration at this time. They compel attention in almost any situation and are easy to grow if the land is fairly well drained. They are partial to leaf soil but impatient of strong manures.

The bulbs also should be planted as soon as they are received from the dealers, as they shrivel if exposed to the air and their vitality becomes impaired. Order now the bulbs from your dealer for next Spring's display. If notes were taken during the flowering time they will be found of much value when going over the lists, as mistakes of the past can be avoided if varieties and quantities were noted.

Early in September is a good time to move and replant evergreens. The climatic conditions will necessarily have some influence when this should be done, as it is a great advantage if transplanting can be accomplished during showery or dull weather. They should not be allowed to suffer from drought. Root action will soon commence after careful planting at this date.

This is a good time to carry out any renovating and reseeding of lawns or making new lawns, as generally there is more time to carry out the detail work than prevails during the Spring rush. The ground should be ploughed or dug over as early as possible. This will give the weed seeds an ample opportunity to germinate and are then easily killed by going over with the cultivator. Grade and level the surface, raking it over to make it friable for the reception of the seeds. Choose a calm day for sowing as it is then easier to get an even stand. If we have showery weather germination is very rapid, but if the weather is dry, artificial watering should be resorted to so that the lawn will be established before Winter comes.

Departments of Foreign Exchange and Book Reviews

WISTARIAS

AMONGST vigorous climbing plants there is nothing more beautiful than a well developed Wistaria in full blossom, particularly when it has been allowed a good deal of freedom, and has rambled over a tree or large building practically unchecked. Wistarias are easily grown and hardy enough for wall cultivation throughout the greater part of the British Isles, while in the warmer parts they succeed admirably in the open, given a large bush or tree over which they may ramble. The genus contains but a few species, and of these two are so superior to the others in general worth that they are almost exclusively chosen. They are amongst the most popular of all climbers for planting on verandas and pergolas, for in these positions the long, drooping racemes of fragrant flowers are seen to the best advantage, whilst they are also suitable for many other positions. Given moderately good and well-drained, loamy soil, their cultivation offers no serious problems, for they grow well from the time they are planted. Soil of a very rich nature may result in too luxuriant growth and moderate flower production; therefore, it is unwise to manure the ground heavily in which Wistarias are to be planted. Moreover, in places where the root-run is restricted flowers are usually produced more freely than where there is an unlimited area of good soil. Free-growing plants against walls have to be pruned to keep them within bounds, and in such cases it is wise to encourage a system of short, sturdy, spur-like growth, such as may be seen on stunted plants grown in pots for greenhouse decoration in Spring. Constant cutting back of secondary branches may be expected to result in growth of this description. The same remarks apply to plants grown on pergolas, but when growing freely over trees or large bushes pruning may be left entirely alone. There are several means of propagation. Branches may be layered into sandy soil. Cuttings of ripe shoots a foot long may be inserted out of doors in Autumn, or shoots may be grafted indoors in Spring upon sections of root.

W. chinensis is the most familiar plant. It is a native of Northern China, and was originally grown in this country about a century ago. It is capable of reaching the top of very high buildings or covering large trees, but by a system of root restriction it can be grown for many years as a bush a few feet high, and be expected to flower freely each Spring. The flowers are mauve in color, very fragrant, and borne in racemes each 8 inches to 12 inches long.

W. multijuga.—Although not so well known as *W. chinensis*, this is an equally desirable plant, and is particularly well adapted for planting on pergolas and other supports, where its racemes can be displayed to the greatest advantage. It is very popular in Japanese gardens, and is introduced in works of art by Japanese artists. It is said to have been introduced to European gardens by way of Belgium soon after the middle of last century, but it has only attained popularity in the British Isles within the last thirty years. It grows almost as large as *W. chinensis*, and is rather similar in leafage, but has much longer and less dense racemes of fragrant mauve flowers. The racemes are often between 3 feet and 4 feet in length, and are produced with the greatest freedom.

W. brachybotrys, *W. frutescens*, and *W. Japonica* are other species that have been described and are occasionally cultivated. They, however, are quite overshadowed by *W. chinensis* and *W. multijuga* for general purposes, and can only be recommended for gardens where a collection of species is desired.

Early in July the shoots produced by the main or leading stems should be pinched back to within a foot or little more of the main stem, in order to check the rampant growth. These shoots will again break into growth from the buds behind where the shoot was stopped, and after these shoots have grown a few inches they should also be stopped. The result of this will be the production of flower-buds at the formation of the shoots first stopped. Early in the following Spring these shoots should be cut back to within five or six eyes of the main stem, the young growths from these eyes to be treated as those of the previous year. By treating in this way long racemes of flower will be produced.—Gardening Illustrated.

COMMON-SENSE PRUNING

IT is decidedly encouraging to see signs appearing of more common-sense methods of pruning amongst our modern horticulturists. I have been pleading for more reasonable and more scientific methods for many years, and I was particularly pleased

to see that your correspondent, "A Scottish Gardener," describes the old methods as barbarous. He is quite right; and it is rather strange that many intelligent gardeners do not discover for themselves that the pruning of fruit trees on the same plan as the trimming of a garden hedge is not the way to produce abundant crops of good fruit. I am sorry, however, to see that "A Scottish Gardener" falls into the common error of stating that if a shoot is pinched back, "the sap would be diverted to other portions of the tree where it would be of more service." Such an idea is entirely erroneous, and until some of the old fashioned ideas about "sap" are got rid of progress with scientific pruning and treatment of fruit trees will be slow.

As a matter of fact, sap cannot be so diverted. It is quite true, of course, that if any of the branches of a tree are removed while the roots are untouched, the root system is then larger in proportion to the branches than it was before, and is therefore capable of supplying more water and dissolved soil food to the tree—if it requires it, or if it can use it. But this is the crux of the whole matter. A plant cannot make any use of the sap—that is, of the soil food—unless it has leaves in which to use it—and the very fact of removing the leaves by cutting off a shoot prevents the sap being utilized.

The sap taken up by the roots consists of a very watery solution of chemicals—that is, of various salts of phosphoric acid, potash, lime, magnesium, etc., some of which are in the form of nitrates, and these salts are dissolved in at least 1,000 times their weight of water. Before these salts can be of any use to the plant they must be carried up to the leaves or other green parts of the plant, where, first of all, the surplus water is got rid of by evaporation, and the salts are then built up by the living cells of the leaves into proteids and other materials used by the plant in its growth. At the same time the leaves and other green parts are manufacturing starch and sugar from the carbonic acid of the air, and some of the water; and this, along with the materials elaborated from the salts brought up from the roots, is then carried, mostly downwards in the bark, to where it is required for the formation of new shoots, leaves, buds, fruit, wood, and roots. If the plant is strong and vigorous, more of this elaborated material is made than is necessary for the daily requirements of the plant, and this surplus is stored up for future use in the bark and in the medullary rays of the wood.

It is from this stored-up material that the plant starts to swell its buds and produce new leaves and roots in the Spring, and not from any flowing of the root sap, as is commonly supposed. I was very pleased to see this fact recognized by one of our well-known horticultural writers the other day, who seemed to have been convinced of the truth of it by observing that a cut-off branch can produce new leaves, and even flowers, without any connection with the soil at all, and therefore without any flow of sap.

These things are worth thinking about, and any practical gardener who thinks them over must see how they bear upon pruning. If the leaf-bearing area of the plant is too much reduced, it stands to reason that the plant is unable to make enough starch and sugar, or to get rid of the surplus water in the sap, and to build up enough proteids and other materials that it requires. It therefore has none to spare for storing up, or even for making fruit buds, well-ripened shoots, new wood, and new roots. It may not have sugar and other materials to put into the fruit it happens to be bearing. It is true that a plant may be producing too much growth; but this is generally due to the soil containing too much nitrogenous plant food, and the plant, with that eye to the future which it always has strongly developed, is bent on making all the growth it can while the favorable conditions last. But the gardener is after fruit, not luxuriant growth, so he checks this by curtailing the supply of stimulating food by root pruning. He is working at the wrong end if he lets the tree take up all the soil food it can, and then attempts to check it by removing the foliage, so that it cannot manufacture the necessary starch, sugar, proteid, etc., that it needs for the production of healthy wood, new fruit buds, and ultimately fine fruits.—Gardening Illustrated.

LARGE-FLOWERING PANSIES

MUCH has been written concerning the culture of Pansies, but this has been mainly concerned with Spring sowing and Summer and Autumn flowering. A few observations should now

be pertinent upon Summer and Autumn sowing and early Spring flowering, which last desirable occurrence may readily be extended into Summer and Autumn if the plants are well grown and the flowers cut regularly and often.

There is greater merit in producing Pansy plants that flower in early Spring than those that bloom at any other time. The blossoms are always larger, for they obtain the benefit of the moist soil and moderate Spring sunshine, whereas the later blossoms may have to endure drought and scorching sunshine, neither of which suits the Pansy.

Let it be understood that *large* flowers are under consideration. Pansies will, of course, grow almost anywhere, but large blooms can only be produced with good culture, a suitable site, a rich soil and a sufficiency of moisture. Good Pansies will not tolerate extremes of either heat or moisture or the lack of them.

The first essential is a good seed-bed, and nothing would be better than the ground from which early Potatoes or Peas have been removed. This dug over, levelled and raked finely, forms an ideal place wherein to sow Pansy seed. The incorporation of leafy or fibrous substances with the surface soil is very desirable, as this keeps the soil porous while allowing it to be made quite firm, and it also affords a nutritious roothold of which Pansies are not slow to take advantage, for there are always some of these leaves attached to the roots when the plants are lifted for transplanting.

No particular time for sowing need be considered if it is done before August departs. Good seed is rather the next consideration. Well known strains should be used, especially those of English and French growers noted for their concentration upon the large flower. These seeds are usually of a mixed nature, for the Pansy produces such a variety of color shapes and markings, and each combination is so interesting that its absence represents a real loss. Of course, there are self colors—in white, yellow, blue, purple, red, black; and there are some strains that produce one prominent color in various shades. Such are the wine-stained, the blood-red Victoria, the terra-cotta Meteor, the silver and gold-margined and the bronze Pansies. These, with a mixture of blue shades, could be obtained and added to any other good mixture of blotched, veined or self-colored flowers, until one has *every* color among one's collection, with every conceivable color marking upon the flowers. I doubt whether any other flower could show such an extensive color gradation.

Early thinning must take place when the seedlings are large enough; delay will spoil all chances of good growth. Each plant should be given at least a square foot of soil to itself at the earliest moment, for Pansies make a very large ball of roots. The thinnings, of course, will be transplanted into rich, firm soil elsewhere. Throw nothing away, for may they not contain the very best types? Give *every* plant the opportunity to flower if room can be found for them. Many of them will flower in the seed-bed; indeed, in mild weather, if the plants have been encouraged to forge ahead, there will be flowers ready to cut at Christmas! If some of the seedlings are potted up, too, and taken into the greenhouse, they will flower earlier still, especially under the influence of a little warmth and a light position near the glass.

When planted in beds or borders in the early Spring, care should be taken to lift the plants with a good ball of earth, so that they receive no check. If planted well, flowers will soon make their appearance, for the plants will be full of buds.

A moist, retentive soil in an open position should be chosen. Pansies are sunshine lovers. Evidence of that will be found in the fact that the flowers will always be facing the quarter from which the sun shines most; therefore a sunny site is an advantage if adequate moisture can be guaranteed. But a sun-dried position is certainly detrimental, and a very wet soil will cause the plants to die away.

Cuttings may be taken from any particular color that may appeal to the grower as worth perpetuating, for seeds, of course, give no guarantee in this respect. Plants from seeds, however, undoubtedly yield the largest flowers.—H. A. Day in *The Garden*.

HINTS ON FIG CULTURE

GIVEN good management, the fig, when grown under glass, yields a larger quantity of fruit than any other fruit-tree in cultivation. Though needing proper treatment, the fig does not require the same close care and attention in its culture as the vine does, for instance. Then, it is so constituted that two crops of fruit may easily be obtained from trees grown in a suitably heated structure. Artificial warmth need only be employed for the production of the first crop, as the husbanding of solar warmth in a normal season suffices to bring the second to maturity.

When the fruits are required in quantity, the best way to secure them is to set a house apart purposely for the cultivation of the trees. This proves a more satisfactory method than endeavoring to produce them under the dual system, as is often seen practiced

when the back walls of vineries and peach-houses are clothed with fig-trees. When so cultivated, the results are variable. The structure for this purpose may either be in the form of a lean-to or span-roofed, and, as regards the trees, they can be planted out and trained on a trellis under the roof-glass, or, if so desired, grown in pots or tubs, as bushes. By either method heavy crops of fruit can be grown, the balance being in favor of trained trees in regard to actual numbers. One thing in favor of the bush system is that, after the trees have ceased bearing for the season, they can be moved outdoors until they have shed their leaves, and then can be wintered in a cool, dry, close shed or stable, where, if well surrounded with dry litter or bracken, they will be secure from severe frost. This proceeding enables the house to be used for other purposes until it is necessary again to bring in the figs and start them into growth.

An excellent way of training the fig, when the trees are planted in a border, with their roots restricted to a certain area, is to reverse the usual order of things, and, instead of planting them at the front of the house, to do so at the back, and train them downward from the top of the trellis to the bottom. This leads not only to increased fruitfulness, but it always ensures a short-jointed growth. It should, perhaps, be mentioned that the first crop of fruit, though finer individually, is never so great in point of numbers as is the second. Trees trained for either purpose are to be had from any nursery where the growing of fruit-trees is made a specialty, or if cuttings can be had, a stock of trees can be worked up in a couple of seasons. They are easily propagated, and the early months of the year are the best time to effect this. A gentle bottom-heat, such as is afforded by the plunging-bed in a forcing-house, facilitates their rooting, after the base of the cutting has become callused. The advantage to be gained by early propagation is that good-sized trees can thus be secured the first season. The wood selected for cuttings should in all cases be thoroughly ripened. The trees intended for training under the roof may be planted after they have made about five good growths. This necessitates their being shifted from the pots in which they are struck into others 7 inches or 8 inches in diameter, before they are in fit condition, or have made the required amount of growth.

Bushes of good size will result the first season if due attention is paid to shifting the plants on from the cutting stage when rooted, first into 5-inch and finally into 7-inch and 8-inch pots; also in stopping and regulating growth, with the object of obtaining open, well-balanced heads.—*Gardening Illustrated*.

TREE-PÆONIES

THE Tree-Pæony may be regarded as the prince of deciduous flowering shrubs. What it may become in course of time may now and again be gathered by a fine bush of *Pæonia arborea*, some specimens having attained about 4 feet high and a similar diameter across, and providing their owners with a rich display of blossoms. How few of such examples really exist is not altogether due to the plants having been planted with a meagre hand; rather is their scarcity due to varying circumstances that have ensued from time to time. Nor must it be taken as a sign that these plants are not suited to our climate, for I believe there are many gardens that could grow them well, were a little more attention bestowed in selecting the site. Formerly the question of position was not sufficiently regarded by those to whom the planting was entrusted, and so it not infrequently occurred that the plants were not given the best position in the garden. The question of position is important, and this is enhanced when we remember how impatient these plants are of removal. Then, again, when attention was given to the position at all, it was usually a sunny one that was selected, and this is, I believe, far from being the best for this group. And how much or how little these plants are affected by position is due to the susceptibility of the plant to be cut back by the late Spring frosts. Though enduring all the frosts of Winter with impunity, which never in the least degree harm them, the fresh young shoots are among the first to feel the chilling effects of frosts in the Spring of the year. And not only leaf-points, but flower-buds, always so closely associated with the bursting leaves, are affected, and sometimes disastrously. It is always more disastrous in results when the plants occupy a south or south-easterly position, for the sun strikes the plants before the frost is gone, and the work of disaster is more quickly completed. Bad as all this appears at sight, it is rendered worse by wrapping the plants up in thick matting for the Winter, a proceeding that only makes the young growers even more tender and susceptible to cold, all of which may be avoided by planting these shrubs in a westerly position—either this or north-westerly. In either of these positions the plants remain quiet through the Winter, and, with the arrival of Spring and those damaging frosts that are of almost annual occurrence, these Pæonies, being more or less dormant, remain unaffected. If the Spring be very late, the plants almost invariably escape because of the protection the position affords, as before the sun reaches the plants all the frost is

dispelled, and it is not merely the disappointment at the failure and the loss of bloom when these plants are yearly cut down by frosts, but the loss of growth that is constantly occurring to the plants, thus preventing them making much headway. So wonderful a group of plants is worth every care to bring it into good condition. Above all, attention should be paid to the drainage, for, if the subsoil is continually wet, there is not much hope for long-continued success. In such instances it will be best for the bed or border containing the plants to be raised above the ordinary level, inserting as drainage, clinkers or like material below. A word as to

PLANTS AND PLANTING. If the original kind finds favor, the ground line for planting will be somewhat clearly defined; but if some of the modern named sorts are being taken in hand it will be seen these are either grafted or budded, the point of union being a rather delicate and frail one. In all cases where this is possible, however, the plant may be buried so as to cover the point of union, and if at the time the bark be nicked or cut with a knife 1 inch below the graft, fresh roots will be emitted sooner or later, and provide a greatly increased support to the plant. Those who are making a start with these lovely plants cannot do better than devote a small bed to them where their wants may receive attention. The blossoms are often each 10 inches across, and in double or semi-double kinds. As to colors, these embrace the purest of white, lovely and exquisite rose shades of glistening satin hues, beautiful shades of pink and cerise, lake and lilac, to say nothing of mixed colors in great variety.—*Gardening Illustrated*.

[In the United States Tree Pæonies do not do well north of the latitude of New York City, except in the Puget Sound region, nor in the central west, where the summers are hot and dry. They are best when grafted upon roots of the herbaceous,—not *officinalis*, however. For the first year or two the union must be near the surface of the ground. After that they may be planted deeper and then they will start to form roots of their own.—*Editor*.]

GARDEN REFUSE

I suppose one of the principal jobs in the kitchen garden is the process of clearing up. There is a lot of what is deemed rubbish or waste, and this has to be gotten out of sight somehow. A cardinal fact that you and I ought to remember is that there is no such thing as "waste" in Nature. It may not be a strictly accurate scientific fact—I do not know—but we might generally take it that anything which has possessed life possesses life-giving properties up to a certain point, and we are on absolutely sure ground when we say that vegetable refuse certainly does possess those properties. It may be thrown in a heap to decay, it may be burnt, it may be buried—those properties are still there, and in some way or other they will act. We want, then, to make sure we do not lose them, but conserve them for our use.

Perhaps the best and cleanest way of dealing with garden refuse is to burn it, and many gardeners avail themselves of this method. There are hundreds of fires on allotment gardens within the radius of two miles from where I write, and their flames at times illuminate the hours of dusk. But there are right and wrong ways of burning rubbish, useful ways and wasteful ways, and the wasteful way is to let it go up in flames and lose much of its value in the atmosphere. To reduce rubbish to ashes as quickly as possible is a wasteful method. It should be induced to *smoulder* to ashes rather than to burn, and this can be done by getting a fairly strong body of fire from the more easily inflammable portion of the refuse, sticks, etc., then piling on the bulk and banking it down with the heavier material, or even with earth. The more valuable elements are not then destroyed, but are conserved, and the ashes are left rich in mineral matter—real plant food. The gardener who thus disposes of his refuse and judiciously uses the ashes on his soil very seldom has to purchase that essential but expensive chemical known as potash. It was this very chemical which made the land in portions of North America so exceedingly fertile after the forests has been uprooted and so much of the "trimmings" and unprofitable lumber had been burnt and incorporated with the earth. I want you all to know the value of such ashes, and when you do you will not waste them, but rather gather them together and take care of them until you are ready to enrich your soil with them.—*Gardening Illustrated*.

TEXTBOOK OF LANDSCAPE GARDENING, by Frank A. Waugh. John Wiley and Sons, Inc., New York.

The publication of this work is a big stride toward the goal the attainment of which must seem desirable to readers of magazines like this, probably without exception. That is the putting into the curriculum of all schools of the liberal arts at least an elementary course in appreciation of landscape. In this way would be realized the profound conviction of the poet Wordsworth expressed in the words: "Laying out grounds, as it is

called, may be considered as a liberal art, in some sort like poetry and painting; and its object, like that of the liberal arts, is, or ought to be, to move the affections under the control of good sense." This quotation was used by Professor N. S. Shaylor in the *Atlantic Monthly* of the year 1898, in an article worth reading again and again, "The Landscape as a Means of Culture." The dicta of that essay, consciously or unconsciously, seems to have been in the mind of Mr. Waugh in writing the book now before us. He states that it is "designed for the instruction of non-professional students in landscape gardening, that is for those who do not intend to become professional landscape gardeners," and modestly adds that at the same time he "hopes that the book will not turn any good men away from the profession." It certainly will turn some into that one of the finest of all professions.

Its definite objects are: To teach the principles of universal art, *viz.*, the principles of order and design; to give a working understanding of these principles as applied to the art of landscape gardening; to apply the principles of landscape gardening to the domestic problems of the average citizen; to arouse an intelligent and constructive interest in civic problems; to bring the student into intelligent contact with the natural landscape; to indicate the great personal and social value of the landscape and to suggest what should be done by nations, states and communities for the preservation and use of the natural landscape. For accomplishing these objects the book is divided into lessons each of clear-cut topic, definitely and systematically outlined, illustrated by one-hundred and sixty-eight appropriate pictures or other figures, with problems to be solved and questions to be answered by the student. These lessons begin, as Professor Shaylor advises that studies in landscape should begin, with the "more domesticated parts" and thus prepare the student to understand, with Plato, that "the greatest and fairest things are done by Nature and the lesser by Art."

So concrete and "practical" are most of the lessons, all except the last few, that a more appropriate name for the book would probably be a "Textbook of Landscape Architecture." The text ends with three chapters that are very instructive and give grounds for the belief that the American people are actually upon the way toward using the "Landscape as a Means of Culture," and of the purifying and ennobling of life. These chapters are entitled National Parks and Forests, State Parks and Neighborhood Parks. In the first two are made accessible lists of the great public parks the mere names of which, to say nothing of their immense areas and wonderful natural treasures, are known to only a comparatively few citizens of the country.

The book is handsomely made, with type large and clear. Of the misprints, most of which are unimportant errors in the spelling of names, the only serious one is the interchange of the text of pages 149 and 150. What is printed as page 149 should be read after page 150.—F. B. M.

INSECT PESTS AND FUNGUS DISEASES, by Percival J. Fryer, F. I. C., F. C. S., Cambridge University Press, London.

It is probably safe to hazard the statement that for many years there has appeared no European book of more practical and economic value to American horticulture than this work of a man who occupies a very responsible position with a large English firm of manufacturing chemists. For sixteen years he has given particular study to the subject of fruit pests and diseases. Although in this his interest has been primarily that of the chemist he has familiarized himself with the entomological and the mycological aspects also. Every one of the 728 pages seems to have been done with the utmost care and confidence is inspired by the make-up in general. It is logical and concise. It begins with a review of plants' structure and habits and with a section devoted to the chief characteristics of insect pests. Then the heart of the work consists of a detailed description and treatment of each insect, some of which infest more than one kind of fruit. But any inquirer wishing to learn about an insect that may infest any particular fruit will have no difficulty in determining what insect it is by means of the drawings and colored plates. Of the 305 figures in black and white each one appears to be clear and adequate. The twenty-four full-page colored plates, each picturing from three to thirteen caterpillars, moths, insects or fungi, are eminently successful works of art. For more complete instruction there is an account of insects friendly to fruit growers. Fungus diseases are handled with the same precision and exhaustiveness as are insects. Though for each pest are assigned methods of prevention or extermination in the section devoted to it there is a complete section devoted to an orderly treatment of spraying and all its sub-topics. The index, listing both the fruits and the pests, is apparently perfect. All in all it is a work that though written for England should be accessible to every commercial grower of fruit in America, if not to every grower of fruit anywhere.—F. B. M.

Tell success stories, not incidents of failure and hard luck. Radiate prosperity, feel prosperous, it's catching. Keep your chin up.—Dr. Frank Crane.

National Association of Gardeners

Office: 286 FIFTH AVE., NEW YORK

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Vice-President—John Barnet, Sewickley, Pa.
Secretary—M. C. Ebel, 286 Fifth Ave., New York.
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LOCAL BRANCHES

Newport, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.

St. Louis, Mo.: George H. Pring, chairman; Hugo M. Schaff, secretary.

Nassau County, L. I.: John T. Everett, Glen Cove, chairman; John McCulloch, Oyster Bay, L. I., secretary.

Boston, Mass.: Robert Cameron, chairman.

THE COMING BOSTON CONVENTION

September 12, 13, 14, 15

A WELL attended meeting of the local branch of the national association was held at Horticultural Hall, Boston, on July 28. Members were present from Hingham, Wellesley, Natick, Manchester, Prides Crossing, Ipswich, Waltham, Beverly Farms and various points in greater Boston. Robert Cameron, president of the national association, opened the meeting and called on W. N. Craig, general chairman of the convention committee, to take charge of the meeting. Reports from the finance, transportation, and other committees were all very promising.

It was voted to select the Brunswick Hotel, Boylston Street, for convention headquarters. Rates at this hotel are as follows:

Double rooms accommodating two persons with private bath, \$6 and \$7 a day; without bath but with running hot and cold water in the room \$4.50 to \$5 a day.

Single rooms, accommodating one person, \$3.50 to \$5 a day with private bath; \$2.50 and \$3 a day for a court room with running hot and cold water, but no bath; \$3 and \$3.50 a day for an outside room without bath but with running hot and cold water.

Street cars pass the hotel from all parts of Boston and surroundings. The hotel is but a couple of blocks distant from the Back Bay Station of the N. Y., N. H. and H. R. R., and the Trinity Place station of the B. and R. R. R.; is within a stone's throw of Copley Square and the Boston Public Library and very conveniently situated for the meeting place in Horticultural Hall and the heart of Boston. There are a number of other splendid hotels very close to the Brunswick including the palatial Copley Plaza, the Lenox, Westminster, and Copley Square.

Dining room facilities at the Brunswick are unequalled in Boston; at the beautiful Flemish Cafe club breakfasts are served from \$50c to \$1.00; special luncheons at \$55c and 85c; and special dinners at \$1.25 and \$2. Unequalled in Boston also is the extensive a la carte bill of fare. There is a splendid cafeteria, old Dutch in style, where the best of food is served, well cooked, at popular prices.

The Boston Public Gardens, Boston Common and palatial Commonwealth Avenue are all within a stone's throw of the Hotel Brunswick. Those planning to attend the convention should bespeak room well in advance, or ask W. N. Craig, chairman of the local convention committees, to do so. All conventionists should report that they are members of the National Association of Gardeners and they will be extended every courtesy.

Some changes and additions were made on the program for the outing on September 14: automobiles will leave not later than 9:30 for the North Shore trip. Amongst other stopping places will be Orchidvale, Beverly Farms, which Albert C. Burrage cordially invited members to visit and inspect the greatest amateur orchid collection in America; the residences of Mrs. Gardner M. Lane at Manchester, Judge William H. Moore and Mrs. Henry C. Frick, Prides Crossing, will also be visited. Leaving there the ocean route via Magnolia, Marblehead, and Gloucester will be followed to Castle Hill Farm, Ipswich, the residence of Mr. and Mrs. R. T. Crane, where a real New England clambake will be served with all the fixin's. On the return journey, Cedar Acres, Wenham, Mass., the noted gladioli and dahlia farm of B. Hammond Tracy will be visited and various spots of historic interest will be passed en route to Boston.

A very full day is planned for the concluding day of the convention which will include part of the Boston Park System, the Arnold Arboretum, Agassiz Museum, and the world famed glass flowers at Harvard, historic Concord and Lexington; the Walter Hunnewell estate, Wellesley, with its matchless collection of rare and unique trees, shrubs and rhododendrons; and the extensive and beautiful H. H. Hunnewell estate where luncheon will be served.

The local committee would suggest to all planning to come from New York, Philadelphia, Pittsburgh and the West to take the outside S. S. line of the Eastern Steamship Corporation from New York for Boston, going by way of the Cape Cod Canal as a cool, comfortable and most delightful route. All railroad travel is avoided here, street cars may be had at the wharf which will take conventionists to the Brunswick or any other hotel preferred.

Mayor James M. Curley will speak to the convention and welcome members on behalf of the city of Boston. Albert C. Burrage will extend the greetings of the Massachusetts Horticultural Society and there will be other prominent speakers.

Various unique features are being planned by the entertainment committee and the ladies will all be well cared for. Boston hopes the 1922 convention will be a record breaker in points of attendance, general enthusiasm, and deeds accomplished. The old Hub of the Universe will warmly welcome everyone and endeavor to make their visit pleasant and profitable. Come therefore to New England's capital and see some of the glorious sights of America's greatest vacation land.

The next meeting of the local branch and committees will be held August 18.—W. N. Craig, Chairman, Convention Committees.

Members intending to attend the convention in Boston should communicate with W. N. Craig, Faulkner Farm, Brookline, Mass., to have him reserve the hotel accommodations for them. Mr. Craig in the foregoing article names the rates of the rooms, and in writing Mr. Craig, particulars should be given as to the kind of room that is desired. It is necessary to make reservations well ahead of time as several other conventions are being held in Boston at the same time as the gardeners' convention, which, of course, will make a demand for hotel accommodations.

Members desiring to go by the outside route of steamers to Boston, on Monday, September 11, can obtain full particulars by addressing the secretary, M. C. Ebel, 286 Fifth avenue, New York.

In order to register at the convention to secure proper credentials to attend the outings, members must show their 1922 membership cards, so please bring them with you.

AMENDMENTS TO THE BY-LAWS

THE following amendments to the By-Laws are to be submitted for action at the Boston convention:

We, the undersigned Branches of the National Association of Gardeners, being of the opinion that the increase in the life membership dues will act as a deterrent to the increase of the Reserve Fund and also being of the opinion that this Fund should be materially increased each year, do respectfully petition that the following amendments be made to Article VII of our By-Laws.

ARTICLE VII

Change Section I to read:

Section I. All moneys collected from life-membership dues shall be placed in the *Reserve Fund*.

Add Sections II, III, IV and V to read:

Section II. Ten per cent of all moneys collected from active, associate, and sustaining membership dues shall be placed in the *Reserve Fund*.

Section III. All investments of the Association shall be considered a part of the *Reserve Fund*.

Section IV. Yearly interest accruing on the *Reserve Fund* shall be applicable to the fund, or the whole or any part of said yearly interest may be extended for specified purposes on the advice of the Trustees subject to the approval of the Association at its Annual Convention.

Section V. The principal of the *Reserve Fund* shall be held intact.

Approved by the Newport Branch, March 22, 1922.

Approved by the Boston Branch, June 30, 1922.

ARTICLE VIII

LOCAL BRANCHES

RULES AND REGULATIONS

Section 1. The object of the local branch is to establish a closer contact between the individual member and the main organization, and to spread a better knowledge of the aims and objects of the National Association of Gardeners amongst non-member gardeners and others interested in Horticulture.

Section 2. Six or more members of the National Association of Gardeners may organize and form a local branch designating the branch after the district in which they are located.

Section 3. On organization each branch shall appoint a chairman and a secretary, and notify the secretary of the National Association of Gardeners of their action giving the names of the officers and the number of members composing the branch.

Section 4. Meetings shall be held as the members may determine and may be of an informal character. Non-members present may enter into discussions but cannot vote on any question.

Section 5. Each branch shall be entitled to send a delegate to the Annual Conventions of the Association. Any branch unable to send a delegate owing to distance or other causes may be represented by a member of another branch.

Section 6. A delegate on arising to address the Convention shall preface his remarks by stating the name of, and the number of members in the branch he represents.

Section 7. Applications for membership in the National Association of Gardeners coming from a district in which a local branch is organized must have the endorsement of that branch.

Section 8. It shall be the duty of committees appointed on important matters at the convention to ascertain, through correspondence with the secretaries of the local branches, the sentiment of the members on the matter in question and base their reports on the consensus of opinion so obtained.

Approved by the Newport Branch, March 22, 1922.

Approved by the Boston Branch, June 30, 1922.

COLLEGE COURSE FOR GARDENERS

Members expecting to take the college course on gardening this fall, as outlined in the July issue of the *CHRONICLE*, which is to be conducted by the Massachusetts Agricultural College in co-operation with the National Association of Gardeners, should communicate with Prof. Frank A. Waugh, Amherst, Mass., who will supply all the necessary information.

MELROSE HIGHLANDS, MASS.
August 1, 1922

Dear Mr. Ebel:—

I have been reading with a great deal of interest in the trade

papers and *THE CHRONICLE* of the establishing of a system of training for young gardeners in America.

It surely is an inspiring idea to see that the great majority of gardeners and superintendents are beginning to realize that some systematic method must be conducted in order to produce an efficient and practical force of new members of the Gardening profession here in America. Since the American youth does not desire to pursue a system of long apprenticeship, as is found in the Old Country, we must make it possible for him to obtain a similar knowledge and experience in a more attractive way. Hence, this establishment of a Training Course for Gardeners.

Through the excellent work and earnest efforts of the N. A. G., in conjunction with the Massachusetts Agricultural College, I believe there will be developed a system of training that will compare favorably with any in the European countries.

The young men who take this opportunity and carry this work through to a finish will never regret it, and especially that time spent at the State College at Amherst. Being a graduate of that fine institution, I fully realize the unlimited possibilities of such a course.

A theoretical knowledge alone can never make a young man a first-class gardener. But, with such knowledge, he can more readily and more efficiently acquire the practical experience that will be his opportunity to get under the careful guidance of the N. A. G. The work at the College will be most successful under the direction of Professor Waugh, and I am sure the co-operation of College and the Association will bring good results.

Such men as Mr. Craig and Mr. Cameron, whom I know personally, will help bring success to such a movement, and no doubt there are many others thoroughly interested in pushing the good cause along.

Trusting that there will be a good turnout of America's future gardeners, this coming Fall, I am,

E. STANLEY DUFFILL.

AMONG THE GARDENERS

Frank C. Slade, head gardener from 1911 to 1920 for C. W. Barron of Cohasset, Mass., died on July 29, after a sickness extending over two years. A native of Rockdale, England, he came to America in 1889, and had worked in Lowell and other cities as gardener before going to Cohasset. His son Frank succeeded him on his retirement at Cohasset. He was a genial man, a good gardener and had a great number of friends who mourn his passing. He was 65 years of age and leaves a widow and four children. Interment services were held at Cohasset on August 1.

Mr. and Mrs. Stanley Jordan of the Harkness Estate, Waterford, Conn., sailed on the *S. S. Aquitania* of the Cunard line August 1, to pass two months in England. Mr. Jordan plans to trot around to different parts of the British Isles, and to try and find out the real conditions and prospects of horticulture in general, particularly regarding the private estates.

We are sorry to have to announce the retirement of W. N. Craig from the professional field of gardening, to enter into the commercial field. Mr. Craig who is well and widely known throughout the country has resigned his position as superintendent of Faulkner Farm, Brookline, Mass., where he has been for the past ten years, and previous to that, superintendent of Langwater Farm, North Easton, Mass. Mr. Craig has bought a piece of ground in Weymouth, Mass., where he will engage in growing, specializing in hardy subjects. While Mr. Craig is about to leave the professional ranks for the commercial field, we are sure, however, that he will not lose his interest in the private gardeners' affairs.

Frank H. Ryan, formerly gardener on the late W. Harry Brown estate, Beverly, Mass., has taken the position of gardener to Gen. Edgar R. Champlin, Beverly Cove, Mass.

George A. Burnett of the firm of Burnett Brothers, New York City, is now in Europe. He sailed from New York on the *S. S. Adriatic* on July 22, accompanied by his wife and son, Samuel. His trip will include visits through the British Isles, Holland and France. Combining business with pleasure, Mr. Burnett intends calling on the leading seed and bulb growers in these countries. A pleasant feature of his trip will be a visit to scenes of his boyhood days in Ireland.

Gardeners' Convention Horticultural Hall

Boston

September 12, 13, 14, 15

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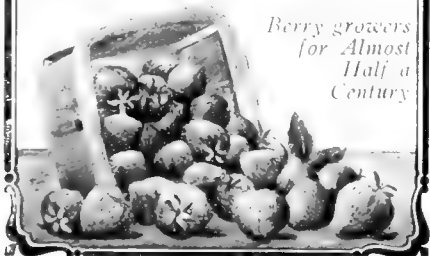
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NASSAU CO. HORT. SOCIETY

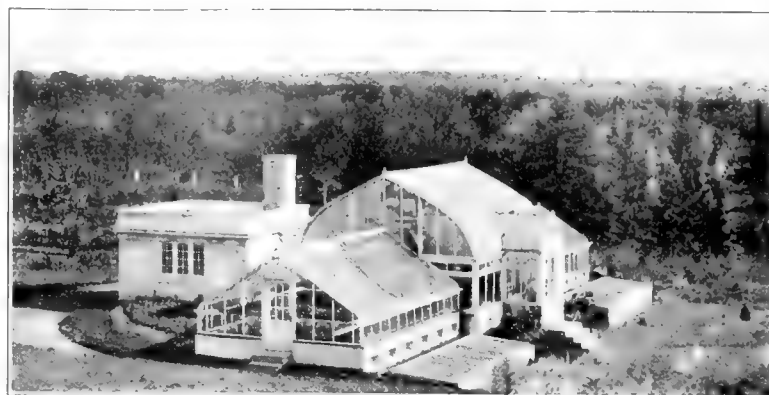
The regular monthly meeting of the above society was held in Pembroke Hall on July 10, with President Milstead occupying the chair. Two petitions for active membership were received at this meeting. President Milstead appointed A. Andrews, James McCarthy and Ben Southerland to judge the exhibits and their awards were as follows: 6 tomatoes, William Milstead, 1st; 25 string beans, Peter Stobie, 1st, Thomas Twigg, 2nd; 2 cucumbers, Thomas Twigg, Cultural Certificate; 8 vases snapdragons, William Milstead, honorable mention; 1 vase gladioli, Thomas Twigg, honorable mention; 3 vases gladioli, William Noonan, honorable mention.

William Noonan, the dahlia specialist, gave \$50 for the dahlia show. An essay on "Old Gardeners" was ably read by Thomas Twigg. The Nassau County Horticultural Society will meet on August 10. Exhibits for the August meeting, 6 ears of sweet corn, 1 outdoor melon, 12 mixed asters. Thomas Twigg, special 3 vases perennials, 1st prize \$3, 2nd prize \$2. A. S. Cook, Cor. Secy.

WESTCHESTER AND FAIRFIELD HORTICULTURAL SOCIETY

The monthly meeting of the above society was held in the Y. M. C. A. building, Greenwich, Conn., on Tuesday, July 11, a large number of members attending. There were several new members elected, and T. J. Bulpitt was elected corresponding secretary to succeed H. Jones, who resigned recently.

The committee selected to arrange the annual field day and dinner with the Tarrytown Horticultural Society reported that the combined societies will hold same at Roton Point, Conn., early in August.



About This Particular Greenhouse

IT happens that only yesterday we received from our publishers a rather delightful bit of printing called "Glass Gardens," in which a complete description is given, of an exact duplicate of this particular house.

The view point is a bit different, but the plan is the same.

As companions, are four other houses of simpler design and lesser size.

Send for this new Glass Garden Circular.

Or if you prefer, send for one of us to come and talk over greenhouse possessing with you.

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There was the usual display of flowers and vegetables. First prize for flowers was awarded John D. Wilson (Gloxinias); second, James Tough (Lobelia cardinalis); third, Wm. Smith (gloxinia); fourth, H. F. Bulpitt (Gladiolus Halley); H. F. Bulpitt, phlox (E. Campbell) vote of thanks; James Linane (Zinnias) vote of thanks. Vegetables, 1st, H. F. Bulpitt (collection), 2nd, James Linane (new Gooseberry Excelsior.)
T. J. BULPITT, Cor. Secy.

HORT. SOCIETY OF NEW YORK

The annual gladiolus exhibition of the above society in co-operation with the New York Botanical Garden, will be held in the Museum Building, New York Botanical Garden, Bronx Park, New York City, on Aug. 19-20, 1922.

The prize list for this year has been very much enlarged, and will include prizes for almost any variety of exhibits. Special prizes have been offered for both the ordinary and the Primulinus types, for displays arranged for effect, dinner table decorations, vases, baskets, etc.

Garden clubs are especially invited to compete, and will have classes open only to them.

Luncheon will be served to all exhibitors, and every facility placed at their disposal. Those who are unable to come in person may send their exhibits by express prepaid to the Museum Building, where they will be taken care of and staged.

The schedule of prizes is now ready, and may be had on application to the secretary of the exhibition committee, Mrs. George V. Nash, New York Botanical Garden, Bronx Park, New York City.

CITY GARDENS CLUB OF NEW YORK CITY, INC.

The City Gardens Club of New York has planned a photographic competition to stimulate interest in beautifying New York City. We felt that you would be interested in furthering such a laudable scheme, and so we are pleased to submit the plan (reverse side)



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A Gentleman, owning a thousand acre place within one hundred miles north of New York City, interested in perennials, rock plants, trees, shrubs, native flowers and shrubs, etc., is willing to give land, house, and half capital to an established firm of nurserymen, or member of such firm, willing to locate nursery or branch on partnership basis on his place. Write full details, in strict confidence, to **SIRMIO**, care of *Gardeners' Chronicle*.

and trust that it will be possible for you to join us in this effort.

The object of the club is to turn unsightly backyards into gardens, to beautify all waste places, to plant trees near important buildings and along treeless streets, to encourage window-box planting, and to be observant of the workings of the park department, in order that we may make city life richer by fostering the love of beauty.

In order to carry out these important ideas, we feel that it is very necessary to have photographs of successful developments, so that people can clearly see the possibilities of their own backyards, and receive inspiration. This is the primary reason for competition, to secure pictures to carry on the good work of making New York a better place in which to live.

May we hope for your co-operation in this work?
FRANCIS B. JOHNSON.

Here and There**WILD FLOWERS BEING EXTERMINATED**

The beautiful wild flowers that once adorned our roadsides, meadows and woods are rapidly disappearing, especially in the country around big cities, and the reason, according to Albert A. Hansen, who sends to *Science* an earnest plea for their preservation, is the "unrestricted, indiscriminate, thoughtless pickings to which these beautiful plants are subjected. Each spring witnesses the descent of legions of thoughtless flower-gatherers who ravish the flora with little a thought that the tearing away of flowers robs most plants of their only methods of reproduction.

The remedy is not the prohibition of wild-flower picking, but the care of pickers not to gather too many. "Sufficient," says Mr. Hansen, "should always be allowed to remain, particularly in the case of annuals, to produce seed and so perpetuate the species. Plants should never be gathered by the roots, as is so frequently the case with hepatica, and other early spring flowers. Plants grow

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As magically as greenhouse flowers seem to grow, still there is a good deal of plain every day common sense about it.

You do have a complete control over conditions and can force things faster than is their usual wont.

But even so, what you gain in time by forcing, you just as surely lose in quality.

Time, therefore, is the vital factor which prompts us to urge you to build your greenhouse now if you expect to surely have joy giving blooms in abundance for Thanksgiving, and all the coming fall and winter through.

Fortunately, greenhouse building the way we do it is carried on with rather surprising speed and quite devoid of the usual botherments.

To help you in selecting just the house best adapted to your purposes, we have a delightful booklet called "Owning Your Own Greenhouse." Send for a copy.

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ing from long, creeping stems, as arbutus and ground pine, should never be torn out.

"It is especially desirable that plants such as the wintergreen be allowed to mature fruit as food for birds during the harsh winter months. Without this source of food many birds die of winter starvation. It is desirable that the picking of such weedy but attractive plants as daisies, buttercups, golden rod and asters be encouraged, since by so doing no harm results and the farmer is assisted with his weed problem. In addition, the cultivation of wild plants in our gardens may save many species for the enjoyment of future generations."—From the *New York World*.

A Transformation

A Scotchman who landed in Canada not long ago accosted a coal black negro for a direction. It happened that the black had been born in the Highland district of Scotland and lived there most of his life. "Hey, mannie," said the Scotchman, "can ye nae tell me whaur I'll find the kirk?" The darkey pointed with his arm. "Go richt up to yon wee hoose and turn to ye're richt and gang up the hill," said he. The visiting Scotty looked at him in horror. "And arre ye frae Scotland, mon?" he asked. "R-richt ye arre," said the darkey. "Aberdeen's ma hame." "And hoo lang hae ye been here?" asked the Scotchman breathlessly. "About two year," said the darkey. "Lord save us and preserve us," said the new arrival. "Whaur ken I get the boat for Edinburo?"—*Argonaut*.

On A Modern Steamship

The other day a great liner, equipped with all the modern necessities, including a palm court, well filled with the varied blooms that spring up in the Atlantic field, set out on her voyage to New York. The captain, ascending a gangway, met a venerable but unknown figure wearing the company's cap and uniform. "Are you of the ship's company, my man?" "I am, sir." "What is your rating?" pursued the astonished skipper. "Please, sir, I'm the ship's gardener," was the reply.—*The Nation and the Athenaeum*.

A Mind Reader

The Lady (to gardener she had hired the day before)—And how is my Sweet William this morning?

Gardener—Fine, thank you, but how did you know my name?—*Selected*.

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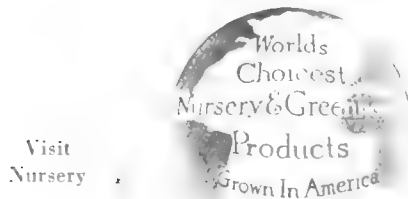
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No. 9

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THERE is a great paucity of flowering shrubs which bloom in August and September. It is true that berried plants are numerous and very beautiful, but flowers are far from abundant. The Indigoferas are not much grown, perhaps because they are not much known and rarely offered for sale, and for the further reason that they do not make as "stunning a show" as some other shrubs. There are said to be about 330 species of Indigoferas, mostly tropical, although several are native to the United States. The indigo of commerce mainly comes from *I. tinctoria*, an Asiatic specie and *I. anil* from the West Indies. At one time the last named specie was much grown commercially in North Carolina, as much as a million pounds being produced in 1775. The rising importance of the cotton crop eventually drove indigo to the wall, but even today plants which are escapes from cultivation, are often found.

* * *

While most of the Indigoferas are greenhouse plants, one or two of comparatively recent introduction from China are hardy as far north as Boston and prove good garden plants. *I. amblyantha* from Western China makes a neat and graceful shrub, 5 and 6 feet in height, carrying in late August numerous dense racemes 3 to 4 inches long of pink flowers, the blooming period extending until October. *I. decora alba* is a low growing almost prostrate plant, hardy at the Arnold Arboretum, and in late August was carrying quantities of its lovely pure white racemes. A charming species is *I. kirilowii* native to northern China and Korea and introduced 10 years ago. The racemes produced in August and September are bright rosy pink in color and resemble *Robinia pseudacacia* in color, and they are produced in great abundance. The plant is of moderate height and of graceful habit and should have a place in every garden where flowering shrubs are valued. The Indigoferas propagate readily from cuttings and layers. *I. amblyantha* produces seeds in abundance, but *I. kirilowii* carries none at all. All can also be propagated by division.

* * *

The hydrangeas while about all of one color, white, are most useful in late Summer, but it is unfortunate that the excellent garden species *H. paniculata grandiflora* is so distressingly overplanted. It seems as if every one with a garden, no matter how small feels it a necessity to plant one or more of this variety. It is a pity more of *H. paniculata* is not grown as it is much more graceful than

its more showy sub-species, *grandiflora*. The sub-species *præcox* is very distinct both in foliage and flower and while blooming earlier than the other forms is still in good condition at the end of August. *H. radiata* has handsome leathery foliage and large circular cymes of flowers, the outer row of flowers being sterile. This is a fine species, better than the variety *cinerea* which is more planted. *H. Sargentiana* makes a very handsome shrub; the nearly flat dense cymes are 6 inches or more across, the fertile flowers pale violet, and the sterile ones pure white. It is a most beautiful shrub from Central China, but unfortunately not hardy in the north, and it also requires shade. Speaking of hydrangeas, I have been surprised to note how hardy the new French race of *Hortensis* hybrids have proved. At the Blue Hill Nurseries, South Braintree, Mass., large clumps have passed through several severe Winters unprotected and flower freely each year.

* * *

There have been some beautiful introductions among the Contoneasters in late years, mainly from Western China. The varieties are so numerous as to be almost bewildering. Some of us remember *C. Simonsii* as a climber in Great Britain and still have vivid recollections of the glorious masses of scarlet fruit it carried. In Massachusetts this species will not winter, being native to the Himalayas, but many others prove very hardy. A few specially desirable sorts are: *C. hupehensis* which makes a dense and very wide spreading shrub, 8 to 10 feet in height, and its pure white flowers are followed by great quantities of brilliant subglobose fruits. This is a beautiful plant whether in flower or fruit, but it must have ample space to develop. *C. tenuipes* attains a height of 5 to 6 feet and is wide spreading. The rather large oval black fruits are abundantly produced and are very handsome in August and onwards. *C. adpressa* is of prostrate habit and carries scarlet subglobose fruit. *H. horizontalis* of which there are a number of forms is probably the most valued of the Cotoneasters. It makes a rather low but wide spreading shrub with round-oval foliage and bright red fruits which are produced in great abundance. The form *perpusilla* is probably the finest of all species for the rock garden, while it rarely exceeds 2 feet in height, it spreads 10 to 15 feet across and the bright shiny leaves, which are smaller than in the type are handsome even without the great number of brilliant fruits.

C. horizontalis Wilsoni is distinct in habit but grows more erect, is more stiff in habit and not so desirable as some others. *C. Dielsiana* produces slender spreading and arching branches and grows 6 to 7 feet in height, and the red fruit are carried in bunches like *Crataegus*. This is one of the very best species. A very pretty low growing and dense shrub is *C. apiculata*, and the leaves are nearly circular and the fruit scarlet. It makes a charming rockery plant. *C. racemiflora soongarica* grows 8 to 10 feet high and 12 or more feet across. The foliage is rather scant, but the great numbers of brick red fruit which cover every stem make the plant a striking object in Fall. The fruits resemble *berberis* in color and persist for a long period. *C. multiflora calocarpa* is a rather thin growing shrub of vigorous habit, carrying large numbers of dark cherry-like fruit. The foregoing are some of the more striking cotoneasters. For the shrubbery and the rock garden they are unexcelled, charming in flower, beautiful in fruit, free from insect pests and with, in nearly every case, bright shiny foliage, they should be in every garden worthy of the name. Propagation by seeds and layers is easy with all species.

* * *

The aconitums or monkshoods are beautiful plants in the hardy garden. Many of us are able to grow them but indifferently. Being native, as they are to mountain regions in Europe, temperate Asia and North America, they succeed less satisfactorily in the warmer and drier plains. Any one who has visited such northern summer resorts as Bar Harbor or any of the islands along the coast of Maine must have been struck by the wonderful luxuriance of the monkshoods. They are to be seen in every garden and often 8 to 9 feet in height. In fact, they increase so rapidly that I have seen them running practically wild on Mount Desert Island. Only a few varieties of aconitums are grown in America compared with Europe. *A. Napellus* and its varieties are the most prominent, while *A. autumnale*, *A. Fischeri* and its variety *Wilsoni* are of the greatest value in the garden.

A. Napellus is the most poisonous species and is largely grown in Europe for the official mite, and the leaves also have medicinal value. Several other species are grown in China, India and Japan for poisonous alkaloids. The variety *Wilsoni* which is a tall grower is most useful in the garden in Fall, coming in as it does, when the second crop of delphiniums have passed and good blue flowers are scarce. Transplanting is best done in the Fall, and it will be found that if given a little shade aconitums do much better.

* * *

The days of specimen stove and greenhouse plants seem to have passed. Years ago we marvelled at the wonderful plants of allamandas, dipladenias, Bougainvilleas, ixoras, *Stephanotis*, ericas, *Francisneas*, *Rondeletias*, staticeas, and others. Large sized plants of some of these are still seen but both here and abroad classes are now seldom allotted to them. For many years that noted grower, Cypher of Cheltenham, produced marvellous examples of cultural skill at the great British provincial shows like York, Wolverhampton, Shrewsbury and Birmingham. The great war with the scarcity of coal and labor caused the virtual wiping out of these grand specimens, and in their stead have come classes for medium sized plants and groups, the latter being a great feature at all the large British Summer and Autumn shows. Our hot climate makes it impossible to duplicate under canvas such exhibitions, and we are mainly dependent on Spring and Fall shows, except for special shows of such popular plants as peonies, *gladioli* and dahlias. I can imagine

nothing more charming than a great flower show under canvas in well ventilated tents where the sun is not too broiling. I have attended one or two shows here in tents which were small but delightful. On the other hand, some held under our August broiling sun bring back memories of wilted judges, wilted exhibits, and a perspiring public.

*

The days when we used to hear the pedlers cry, "Fine ripe strawberries, three boxes a quarter," have passed, never perhaps to return, but the cry combined as it is with the profusion of bright scarlet berries with their fragrances, produced on even the casual passerby a fascination created by few if any of the other fruits which later in the season find places on our tables. Can anything be more alluring than a basket of fresh picked, well ripened strawberries, resting on some of their own foliage? With the dew still sparkling on their glossy sides and flanked by a generous supply of rich cream, truly 'tis a "feast for the gods." Strawberries have been in cultivation a long time. Historical mention is made of the fruit as far back as the 13th century, but no record of their cultivation is made until 1483. In June of that year Richard, Duke of Gloucester, is reputed to have said that he had seen good strawberries growing in the Bishop of Ely's garden. The strawberry of that day and for several centuries later was simply a wild plant transferred from hedgerow to garden. Not until the introduction of the large Chilian strawberry in the last years of the 18th century did a new era in strawberry culture begin, aided by the addition of new species notably one from North America.

* * *

A tribute must be paid to the skillful hybridizers here and abroad who have helped to evolve the strawberry of today. In the nature of things new varieties must constantly appear or degeneracy would result. The only way to keep up or improve the standard of existing varieties is to save new seedlings. The number of new seedlings introduced in America must run into the thousands, and a few of these have survived more than one generation. The old Gandy is still popular and with many Brandywine is equally good, so is Sharpless.

* * *

The finest all round variety introduced since I came to America is Marshall, picked up by chance a wildling at Marshfield, one of the strawberry centers of Massachusetts. Sent out 30 years ago, this variety has never been surpassed for color, size, flavor and all round excellence. For forcing purposes it remains without any serious rival. It needs, however, a stiff, rich, retentive clay loam and liberal manuring to do its best outdoors. It is worthy of note that since the introduction of Marshall at every strawberry show held in Boston in all that time this variety has won "hands down" for the best dish of strawberries. The everbearing race of strawberries prolongs the season very nicely. Superb and Lucky Boy are my choice of this section. Our American strawberries are much more acid than the European ones. What we need now more than anything else is varieties as sweet as Royal Sovereign and Laxton's Noble so that we can dispense with sugar when eating them and rely on cream only.

* * *

It is interesting to note that everlasting flowers of various kinds, such as *Rhodanthes*, *Acrocliniums*, *Helichrysums*, *Gomphrenas* and *Staticeas* are finding increasing favor among flower buyers as well as owners of home gardens. They have sold satisfactorily in the flower

(Continued on page 257)

Rambling Remarks on Plants

FLORUM AMATOR

THE bunches of berries on the *Viburnum Opulus Americanum*, commonly called Cranberry Bush or High Cranberry, which began to turn red in the last of July, have now put on a bright scarlet color. Retaining this color they will remain on the bush, to which they cling tenaciously, all Winter, for the birds do not eat them. Their acid fruit is a substitute for Cranberries, hence their name. This shrub is a native from New Brunswick far westward and south to Pennsylvania. In a Winter garden of bright berried shrubs this *Viburnum* is almost unsurpassed. The variety, *Sterile*, of *V. opulus*, the European Cranberry Bush, is the well-known Guelder Rose or Snowball, while *V. tomentosum plenum*, is the beautiful Japanese Snowball. Several of the *Viburnums*, of which there are about 120 species widely distributed through the different countries of the world, are among the most desirable of shrubs in ornamental horticulture. The Roman poet, Virgil, immortalized, so to speak, the *Viburnum* in a famous simile in his first eclogue, in which he says:

"Verum haec tantum alias inter caput extulit urbes,
Quantum lenta solent inter Viburna Cupressi."

a prose translation of which is as follows:

"This (city, Rome) has raised up her head as high among the other cities as the Cypresses have raised theirs among the supple *Viburnums*."

Spiraea Bumalda, variety "Anthony Waterer," is one of the most desirable of all pink or crimson Summer flowering *Spiraeas*, for the *Spiraeas* we may note are divided into two general seasonal classes, namely, Spring and Summer bloomers, the flowers of most of the former being white and of most of the latter pink or crimson. The Spring bloomers give in general but one crop of flowers, but some of the Summer bloomers several crops. Anthony Waterer, if all the dry flowers or seed pods are cut off, and each branch is cut back a few inches, will give a moderate crop of pretty Autumn blooms, and furthermore, the new foliage which this shrub will put on after its pruning will have a variegation of pink, white and green, the same as the new foliage has in early Spring. Of all the strictly deciduous shrubs there is no one better to use in making a low hedge, for it bears pruning well in any season, and is among the hardiest and most floriferous of shrubs, and nearest immune from disease or insect attacks. There is a native *Spiraea*, namely *S. tomentosa*, commonly called Hardhack and Steeplebush, whose steeple-shaped panicles of pink flowers appear from July through September, and whose leaves beneath are densely grayish or yellowish tomentose. This is an upright grower reaching a height of about four feet. We have always wondered why we have not seen this *Spiraea* used in forming a hedge. The plants would, we think, if cut down to the ground each Autumn, grow rapidly on the coming of Spring, and form an attractive hedge, producing flowers on the new wood.

There is a species of *Potentilla*, Cinquefoil, Five-Finger, a native of North America, which is an unique shrub, namely, *Potentilla fruticosa*. This shrub reaches an extreme height of about four feet. It prefers a moist position. We well remember the first specimen which we ever saw, in full bloom growing in a moist swamp way back in those happy days when we spent much time in field botany searching for specimens new to us. This plant, however, like the *Hibiscus moscheutos*, and some other swamp plants, will grow in a dry position also. We have

spoken of this as an unique shrub, and we think a brief description of it will uphold our statement. Though growing only one to four feet high, it is shrubby and much branched; its bark is oddly shredded, the leaves are pinnate with five to seven leaflets with revolute margins, and silky, giving to the bush a very odd appearance which immediately attracts attention; its flowers are bright yellow, numerous and showy, and appear throughout the Summer. This shrub, too, we think, would make a pretty and unusual low hedge. One tires a little, though they are very appropriate we admit, of the ubiquitous Privet and Barberry in hedges.

We often speak of persons as sensitive, we meet them on every hand. We have sensitive plants also, not a few of them indigenous. Growing in the sandy field and roadsides from New England to Florida and west to Indiana, Kansas and Louisiana we find *Cassia nictitans*, Wild Sensitive Plant, the ten to twenty leaflets of whose pinnate foliage will fold up, if brushed gently by the hand. To this genus by the way, belongs *Senna*, whose leaves are used in medicine, namely *S. acutifolia* of Egypt, and *S. angustifolia* of India and also our native Wild Senna, *S. Marilandica*.

The twice pinnate leaves of our native *Schrankia uncinata*, Sensitive Brier, a plant which, by the way, has recurved prickles, hence its specific name *uncinata*, and round heads of rose-colored flowers, are very sensitive. This plant is found from Virginia to Florida and westward to Illinois, Kansas and Texas growing in dry sandy soil, and is nearly related to the true Sensitive Plant, *Mimosa pudica*.

Mimosa pudica is not strictly indigenous in this country, but though a native of Brazil, is widely naturalized in warm countries and has run wild in our Gulf States. This somewhat shrubby, hairy, spiny, erect, branching plant, is very sensitive; when its pinnate leaves are touched, the petioles fall and the leaflets close, especially on young plants.

The stamens of our Common Barberry, *Berberis vulgaris*, flowers are very irritable when touched, as is well known to the boys and girls of New England, where this shrub grows, and spring out of the concave petals in which normally they rest, in towards the center of the flowers.

There are two old vegetables which when we were boys, we used to see growing in many of the kitchen gardens of New England, generally close to the garden fence, where it would not be necessary to disturb them in the Spring plowing or spading, for these plants are perennials. The one is *Levisticum officinale*, Lovage. This is a tall plant with dark green shining wedge-shaped leaves, cut toward the apex, its radical leaves being two to three times divided. The leaf-stalks used to be blanched and eaten like celery. Lovage is a native of Southern Europe, but has escaped from cultivation in some places in North America. Lovage may be set out in beds about three feet apart each way. The plants when well established will be profitable for several years with little cultivation. The second of these two old vegetable plants is *Crambe maritima*, commonly called Sea-Kale. This is a smooth, strong growing perennial about two feet high, whose heavy, large leaves are cut and somewhat curled or fringed; it is a native of the coasts of Europe. This plant is worth cultivating.

Autumn Glory at Englishton Park

HELEN ORR ENGLISH

RETURNING to the country late in the Autumn after an enforced stay during a large part of the Summer in a town apartment has the same effect upon me as when I receive the first Spring flowers from my garden after a long, cold, dreary Winter in town. The unutterable joy of returning to find the house overflowing with



An excellent view of the rock garden at Englishton Park.

the results of years of past study to see that it has been kept in one's absence the same as when present, grounds and home perfect in their Autumn glory, a tribute to gardener and housekeeper. I cannot but speak of the faithful caretaker of this particular home, whose daily pleasure it is to concoct, if one may use such a word in horticulture, such lovely arrangements for my enjoyment. Years ago I remember so well her bringing me in from the northern wood a handful of wonderful, odd, and unusual berries and leaves. It was not familiar to me but after a little searching among my books, to my joy I found it to be the bluest berried plant, whether wild or cultivated, that grows, and which I had never seen but had read so much about, *Clintonia borealis*.

After this little digression, I shall now write of the things which give me so much delight, for I am longing to tell those who love Nature of the beauties awaiting me both in and out of doors. A return at that time of the year to the lover of the all year round garden is an inspiration for future work, and I am filled with a desire to imbue others with my love of gardening and to impart any knowledge I may have gleaned from years of experience. I never really know what to plant for Fall effect until I see the beautiful flowers, branches of trees and berried shrubs that I can have in late October and November, many of which will remain during the Winter to cheer the gloomy days. The little known Autumn crocus, *Colchicum autumnale*, continues to bloom late in its somewhat desolate surroundings of Virginia Willow (*Itea virginica*), which have yielded of their glory for weeks in the preceding May and June. This late straggler makes me think of the Indian Pipe (*Monotropa uniflora*), which I have seen by the hundreds growing out of rotted trees and leaf mold in the dense woods of Michigan, a little ghost-

like flower, and without odor. For the first time, when I saw the mass of crocus at my feet, I unconsciously connected the two. The Spanish Bayone or *Yucca*, "Our Lord's Candles," of a very different family and far from being a fungus or parasitic growth, as the Indian Pipe is properly classed, has that same deathlike, odorless whiteness. I do not know why I associate these three different plants—one a bulb, one a fungus growth, and the last a native of hot desert sandy lands, transplanted to our gardens, but there must be a similarity for me to do so.

The wonderfully colored leaves of the "Winged Strawberry" (*Euonymus alatus*), and its cork wood branches make a fine showing as a background for the lily pond several hundred feet away from the house. In the garden this group immediately attracts the eye and holds it; while indoors, when mixed with the dainty, feathery sprays of *Spiraea Thunbergii*, the "Winged Strawberry" is attractive beyond words. It is just as lovely when combined with the stout stiff branches of the dark green Mountain Pine. *Spiraea Thunbergii* planted out of doors with *Kerria japonica*, single *Corchorus*, is a combination no garden should be without if only for the Fall effect and contrast of the two during the entire Winter. The red leaves of *Rhus aromatica* (Aromatic Sumac), rivals the *Euonymus* and I for one would not be without this especial variety.

The huge beds of annual scarlet sage are brilliant in August and September. It is so common and deplorably overdone and over-rated in the cities that I plant it very sparingly and then only for the pleasure that the brilliant mass gives to passers-by. Its short lived beauty passes entirely at the touch of the first early frost and becomes just a brown dead mass. Why will not the masses appreciate the pleasures to be derived from hardy gardening?



The *Vincetoxicum*. To the right background is a ring-curved willow (*Salix amygdalioides*), an oddity.

The home attests to the hardiness of my garden. It glows with the scarlets and golds and greens of the varied plantings whose beauty I shall attempt in a feeble way to picture to my readers.

Different from the arrangement of *Euonymus* and dwarf Swiss Mountain Pine mentioned above, and as

effective, are the trailing junipers, the Japanese, *squamata* variety are preferable, mixed with the bright red of the Winter berry, the deciduous holly. In the garden, whether as specimen or as groups, the effect is gorgeous, and I have a little pre-Christmas display in October.

For indoor decoration the English Yew, *Taxus baccata*, is unusual when combined with Japanese anemones, both single white and the semi-double "Whirlwind." These Japanese anemones are most difficult of cultivation for me and I have known these rare beautiful plants to change their position in the same bed. I have planted them in one place and in the Spring have found that they chose to come up closer to the stone foundation than I had intended. When this unique idiosyncrasy occurs and they refuse to stay "put," it is necessary to use other plants to edge the bed, perhaps the delightful blue campanulas or Japanese bellflowers, which follow the Poet's Narcissi blooming in early Spring. The anemones require proper soil, mostly wooded earth or leafmold, and a shady location. Their natural tendency is to hug the stones wherever possible.

Can you visualize a scarlet cactus dahlia or two in a vase with a clump of rugged white Japanese rose, the justly well known *Rosa rugosa*? Also another grouping of an old fashioned "Show" rose-pink dahlia, an Ulrich Brunner rose and a Conrad F. Meyer rose (*Rosa rugosa*)—without question the most beautiful Japanese rose grown—in a glass vase with a spray of the delicious feathery, silvery-blue *Retinospora squarrosa*?

A few hardy delphiniums as well as the aconitums, or Monkshood, still bloom on my return late in the Fall, and furnish lovely blooms for the house. I always look upon these two as closely related because to me they seem somewhat alike. I find also at that time a few *Chrysanthemum arcticum* or daisies, and mixed with the purple of the delphiniums they make a splendid display.

A large bowl of African marigolds illuminates the dining room and in a wall cabinet under a brilliant inside light, in a peculiar scarlet vase, I place a few sprays of the scarlet and gold berries of the *Euonymus*, with some cuttings of the English Yews, the *repandens* variety. A little later the wall pockets on each side of this cabinet are filled with bronze chrysanthemums, the dear old pungent sort that, to my taste, is the only real chrysanthemum.

I have a more delicate arrangement of the *Tartaricum* variety of hardy asters, China asters and *Spiraea* sprays with a few black berries of the Regal's Privet, which, strange to say, notwithstanding the many colors, all blend well under low lights. So many vases and bowls of Winter berries, *Ilex verticillata*, give me a Christmas feeling in Indian Summer days. I am the very proud possessor of a few American holly bushes that are old enough to yield their genuine holly berries, and these are especially treasured because I do not know of any other holly bushes in Indiana. There are so many pseudo-holly leaved shrubs that one more deeply appreciates the real when fortunate enough to have them.

The long borders of nasturtiums are in all their glory and the fragrance indoors is very sweet. They are most pleasing when placed with rare golden Chinese cypress or *Arbor vita* and the biotas, which are planted in my garden at the end of the nasturtium borders. This reminds me to caution any one when buying seeds to buy only the choicest in the Spring, as one is well repaid for extra expense, if any. In dealing with the practical end of gardening, I always consider Spring the better time to plant the late flowering or berrying plants and shrubs about which I am writing. It seems the more logical time for success with them, as they appear to be more dormant than when they are yielding their glory in the Autumn.

The *Scabiosa*, or Mourning Bride, as well as nasturtium, repays one when only the best seed is selected, the choicest seed yielding the rarest shadings in these particular flowers. The same is true of dozens of annuals. As a result of my care in the Spring, I have a splendid planting all Summer of Mourning Bride, where they bloom every year as fillers for the Spanish Iris at the lily pond when the iris have bloomed and gone. The *Scabiosa* or Grand Mother's Pin Cushion, is such a clean and lovely little tufted plant, which frequently seeds itself in my climate, that everyone should have it. I cut it with abelias, sometimes called the arbutus shrub, another beautiful but little known shrub, and their purple and delicate pink shades harmonize so well together that one seems the complement of the other. I wonder who knows the unusual Beauty Fruit or *Callicarpa purpurea*, which is at its best in the late Autumn with its beauteous mulberry purple berries. The flower is so infinitesimal as to be unnoticed in the Spring,



Spiraea Thunbergii and *Corydalis Japonica* in bloom at Englishton Park.

but one is amply rewarded during the Fall months, when the shrub is heavily laden with delicately colored purple berries. The effect of half a dozen full bearing branches of their dry brown leaves mingling with a lavender phlox, a few hardy asters and leaves of *Thalia dealbata*, a semi-aquatic, is most unusual and striking.

Even the form gives of its beauty to my eye for color. In passing by a tobacco field a solitary bloom on a sucker of a tobacco plant attracted my attention. It is a most delicate shade of pink, a faint rosy dawn and it goes well with a very pretty black eyed, light blue delphinium, Kelway's "Silver Buckle." The combination is extremely delicate in coloring.

The cosmos in late Autumn are still lovely where protected from frost by the plantings. A single bloom of the lovely blue *Stokesia* with much of its crisp, green foliage, is a charming companion for a canary yellow dahlia. The blue and yellow were exquisite in a Rookwood green vase. Bowls of Polyantha roses, the Baby Rambler, and little Marie Pavie, throughout the house in full flower and bud make one think it is June instead of Autumn.

I cannot pass by some gorgeous trees without a word, the handsome sweet gums which enrich our gardens with their purple, dull red and green colorings; the variegated

(Continued on page 259)

The Greenhouse, Month to Month

GEORGE F. STEWART

WE are now well into what is termed the Indian Summer. After the first light frosts, we are sure to have a spell of warm weather and the greenhouse man is tempted to leave the more hardy plants outdoors for a little while longer. It is, however, safest to take no chances. Get everything into Winter quarters as quickly as possible. A friend of mine took the risk of leaving his azaleas out late one year and an unexpectedly sharp frost dropped all the buds, losing a whole season's effort for him. Last September and early October are very busy months. There are so many little things that are likely to be overlooked, especially if one is shorthanded, as many are.

Azaleas that are required by the first of the year should be placed in a cool light house near the glass. Syringing should be avoided as it is likely to start growth which may throw the flower bud. Should any young growths appear, pick them off as soon as they can be handled. The succession azalea plants are better in a cool pit from which frost is kept and which is not too light. In a structure of this kind they may be had in flower up to June if one has the later flowering varieties. They need careful watering, never being allowed to get dry. Occasional waterings with soft coal soot water, we find, keeps a rich color on the foliage and is not likely to stimulate growth if they are kept cool.

Similar treatment, we find, is good for acacias until they are wanted to come in flower when they must be given all the light possible, but never attempt to force with heat, as it will cause a loss of flower buds and start a new growth. Heaths and all other cool greenhouse hardwood plants may also be stored in a cool pit and when wanted in flower a light cool greenhouse is the place for them. Get all these plants under cover before the end of the month of September.

Bouvardias need an intermediate temperature and plenty of light to develop their flowers. If well rooted in their flowering pots a little stimulating with Clay's fertilizer once a week will help them. All *Buddleia asiatica* and *stevias* may be stored in the cool pit and removed to the cool greenhouse as needed.

Chrysanthemums are now at an interesting period and need liberal feeding to swell the flower buds. All watering is better if done in the forenoon. Have a nice dry bracing atmosphere over night. Close the bottom ventilators on cool nights. It will help to prevent mildew. Light dustings of air slacked lime under the foliage is very helpful in drying up any moisture that may be around. Disbud as soon as the buds can be handled. Train the specimen bush plants into shape as soon as they set bud. Put in cuttings of the Paris daisy (*Chrysanthemum frutescens*) for they will make nice plants by Spring and are useful also for cutting. Another beautiful and quaint flowering plant is *Statice Suworowii*. It is an annual and seeds sown now will make nice plants in six-inch pots by Spring. The variety *alba* in pure white will prove effective when grouped with other colors of plants.

Fuchsias that were rooted in August ought now to be ready for three-and-a-half-inch pots. If good specimens are wanted in nine and ten-inch pots next May, keep them moving along without getting pot bound. Train up the

pinch it and then take the strongest break for the leader. Take the points out of the side breaks every time they make three or four double leaves. This will fill in the sides of the plant nicely.

If good strong plants of the Lorraine type of *Begonia* are wanted, they can now be transferred to a cool house and hung well up to the light. By this treatment they will last longer than if transferred to a room when in flower.

Any nerines that are overcrowded in their pots may be given a shift but never pot them if there is plenty of water space in the pots. Immediately after flowering is the best time to pot them. These beautiful plants ought to be seen around greenhouses in the Fall of the year more frequently than they are. They flower at a season when flowers are none too plentiful and there is now quite a range of color among them. When grouped with adiantum ferns they are very effective.

Keep an eye on the calceolaria plants and pot them along if large specimens are desired next Spring.

Primulas may soon be shifted into their flowering pots. Pot all bulbs as soon as they arrive. They may be stored in any frost proof building and covered with sand to prevent the bulbs rising out of the receptacle as they are apt to do, if no pressure is on top of them. Frost will not hurt them but it may crack the pots. We find that the easiest narcissus, after Paper Whites, to force is *N. Jonquilla Campenellii*, and it is so much more dainty than many of the others that it is a great favorite with ladies.

If *Iris tingitana* is grown, be sure that it is kept in a cool house as it will never flower if forced in heat.

Giganteum lilies when potted are better placed under a bench where there is no danger of drip and drawn up about four inches. If this is not done they come very short in the stem. Giganteums like a temperature close to sixty degrees at night from the time they are started until the first flower begins to open, when they may be hardened off by removing to a cooler house. *Lilium formosum*, we find, does better grown cool and we think on the whole is a better lily for the private gardener. *Lilium candidum* also does better grown cool and is a very graceful lily when in flower. *Lilium regale* has not so far forced well with us, but my friend Wm. Anderson of Lancaster, Mass., says that if kept over in the same pot it does much better the second year.

Tropical plants will now have about completed their season's growth and from now on and for some time stimulation will not be necessary. If such plants as *Croton* are forced into growth at this season, a soft set of leaves is likely to be the result, if we have a long period of cloudy weather they might drop. The shade may be removed over the crotons and a night temperature around sixty degrees maintained, giving plenty of air on all favorable days. By this treatment the leaves will color nicely and the plants will get good and firm which will cause them to give much better satisfaction when used for decorative purposes.

Marantas will require a similar treatment as the above, only must be shaded a little longer on bright days than crotons. The same is true about alocasias, anthuriums and other tropical plants of similar nature.

Any gloxinias, tuberous-rooted begonias, achimenes, fancy leafed caladiums that are going to rest, dry off gradually and when the foliage is gone they may be placed in a dry position where the temperature does not fall much below sixty degrees. We have seen many of them lost by trying to rest them in a cool temperature. Plants in flower just now are gloxinias, allamandas, flowering anthuriums, *Pancratium fragrans*, dipladenias, *Clerodendron Balfourii*, *Eucharis amazonica*.

This is the best time of the year to secure soil for potting. Get a good tough sod from an upland pasture and stack it up with layers of cow manure in between, also adding a good sprinkle of bone meal. We think it is better not to add lime to the compost heap as when one comes to use the soil, many greenhouse plants of a hardwood nature do not like it. Lime may be added when mixing for potting when the plants require it.

As the cool nights arrive, the roses will need stimulating. We give a slight topdressing once a week using alternately bone meal, goat manure, Clay's fertilizer, tankage and dried blood. Cow manure we think is better used in a liquid form. If put on the rose bed as it comes from the barn it is apt to make a soft growth, the leaves then becoming more subject to black spot and mildew.

Finish potting any of the late fruiting pot fruit trees. Grapes will now be ripening fast and plenty of air is in order. Keep the atmosphere as dry as possible. The principal thing now will be to get them in a condition to keep as long as possible and I think hanging on the vine is the best place for them. If cut and put in the fruit room in bottles with water in them, we think they lose a good deal of their flavor.

Look carefully after the strawberry plants intended for forcing next Winter. Now is the time when a good crown is built up by careful watering and feeding.

Orchids from now on will need more careful watering. Allow the compost to get quite dry before watering on *Dendrobium Phalaenopsis* and *Cattleya labiata*. *Dendrobium nobile* will be finishing up their season's growth and may be removed to a cool house and gradually dried off; also the Wardianums as soon as growth is completed. *Phalaenopsis* must also be more carefully watered, and look out for slugs or they will soon destroy the leaves and any flower spike that may be pushing up.

Give the calanthes plenty of room and feed them well as they are finishing up their bulbs, and begin to develop the flower spike.

Look out for sudden changes in the temperature. On raw cool nights fires will be in order.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 252)

markets while gladioli, dahlias and asters have gone a begging, perhaps because buyers realize that they are everlasting. Statice particularly are coming into their own each year. These charming flowers have an immense sale abroad and the number of bunches sold in Covent Garden Market is almost unbelievable. While a fair number of the hairy *Statice latifolia* are included, the majority are of the annual varieties like *Bonduelli*, yellow, and the mauve, white and primrose colored forms of *sinuata*. *S. Suworowii* succeeds much better in pots than outdoors and can be flowered from Christmas until the end of June, by starting seeds at intervals. It makes a very nice pot plant and is of remarkably easy culture in a cool house. There is a white as well as a colored form of this statice, which is a native of Western Turkestan. *S. profusum*, a greenhouse hybrid is a sub-shrub, sometimes seen 3 to 4 feet high and 5 to 6 feet across when grown into specimen size abroad, this is blue-purple in

color, with a yellowish corolla. The grand specimens of this variety will be very well remembered by many members of the craft.

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I read with much interest in one of our English contemporary magazines of the fortnightly meeting and exhibition of the Royal Horticultural Society in London on August 9, these meetings always bring out numerous exhibits and are largely attended by the garden loving public. I was more especially interested in the bestowal of an award of merit to what is described as "an elegant-lady fern, has pale green arching fronds which are crested at the apex, and also at the end of each of the pinnae." The plant thus described was shown by Amos Perry, a noted hardy plantsman under the name of *Athyrium filix-femina angustatum mediodecipiens corymbiferum*. The British ferns are a most interesting class, but years ago when helping to handle a large collection, I was always glad that Latin had been included in my school curriculum, yet nowadays students in college horticultural courses are not asked to take Latin at all, or have a choice of French or German. A knowledge of the several ancient and modern languages may not be necessary to make a man a successful gardener, and one who can produce good plants, but I have always insisted that it would be a great asset for a young man planning to follow floriculture or the broader field of horticulture as a profession to acquire a knowledge of Latin, as it would be of inestimable value to him in pronouncing and knowing the meaning of plant names. Next to a command of English I would place Latin as the most valuable language for a gardener to have a fair knowledge of.

HOW OUR WILD FLOWERS CAN BE PRESERVED

THE ultimate fate of the varieties of wild-flowers which are threatened with extermination lies with the motorists. Other causes combine to hasten this process near the centers of population, including the picking by school children and holiday makers; but the motorist alone goes far afield to the natural reservoirs where enough seeds might still be grown and disseminated to counteract the diminution of the supply near the cities. In the remoter country districts the flowers are in small danger of being intensively picked by the rural population. But the motors bring countless pickers, of every grade of science, eager to seize every rarity they see. The complete disappearance of conspicuous varieties from the more traveled highways is proof sufficient of the crying need of a better understanding of conditions by the motorists. There are flowers to be picked and others not to be picked, and only study can differentiate between them.

Another reason for the disappearance of some of the favorite American plants from the haunts where they used to be most plentiful is the use of great quantities of evergreen species for winter decoration, especially at Christmas time. The picking of the Christmas fern and of ground pine is on a very large scale in many places, but most harmful of all is the unrestricted winter picking of laurel. Laurel makes its leaf growth after flowering in June, so that picking the flower branches is only temporarily harmful, if it is not done on too wholesale a scale. When one realizes the twenty years' growth of a laurel plant is used in every yard of laurel rope one appreciates the destruction caused by the Christmas church decorations. There are plenty of excellent substitutes. Beautiful decorative effects are possible with pine branches.

Work for the Month in the Garden

SAMUEL GOLDING

THE recent climatic conditions have been most favorable to the growth of late crops, and the outlook at the time of writing is most encouraging and full of promise for good supplies of late vegetables.

The advent of Jack Frost cannot now be long delayed and we realize that the time of seeding is over for the season in the open ground, and our efforts must turn to harvesting the ripe crops and to some means of protection for the more tender subjects, endeavoring to prolong the supply, and conserving whatever possible for use during the long Winter ahead of us.

Lift the main crop of potatoes as soon as they are ripe, especially if the weather conditions are favorable, as they will gain nothing by being left in the ground. Spread the tubers out in a cool, airy place to dry. If disease is present, they can then be carefully gone over and the diseased tubers removed when storing away for the Winter.

Carrots and beets may be lifted and stored away in the root cellar, but failing this, they may be placed in sand in a frost proof shed.

See that the onion crop is properly dried and harvested. Before storing, it is advisable to turn them over occasionally. Keep those with thick necks for immediate use, as their keeping qualities are poor.

During this month celery will make rapid growth, and it is important that we keep ahead by earthing it up. During the early weeks of October the rust is generally more prevalent, and where it appears it will demand much attention to combat it. Remove and burn the diseased leaves, and spray with Bordeaux mixture to prevent its spreading.

Tie up the leaves of cauliflowers over the hearts to keep that desirable white and clean appearance. Tie up endive to blanch and have space ready in frames where some may be placed in case of early frosts.

Remove the lower leaves from the Brussels sprouts to give them the benefit of all the light and air possible. Keep the hoe going between the rows of late spinach, kale, etc.

Have a supply of salt hay or other suitable protecting material to protect beans and lettuce, if necessary. Make a point of having the sashes ready in case of sudden frost, to cover late crops growing in pits and frames. Give these plants every encouragement to make good growth. As soon as the land is cleared of early crops sow Hairy Vetch and rye as advised in last month's calendar for plowing in for green manure in the early Spring.

Remove the runners from the young strawberry plants and cultivate to encourage the formation of fine crowns for next year's fruiting.

Commence to collect material for mushroom beds for Winter supply.

Begin with the planting of new peony beds; divide and transplant where necessary in September, giving them a good rooting medium.

Divide and transplant the Oriental Poppy in September, and make root cuttings of any particular varieties you wish to increase.

This season has been particularly favorable to the growth and blooming of the perennials

and Summer-flowering bulbs, such as *Physostegia virginica*, *Veronica longifolia*, *subsessilis*, *Cimicifuga simplex*, *Artemisia lactiflora*, *Eryngium amethystinum*, *Salvia farinacea*. The last named, although fairly hardy, is best treated as an annual. It makes a fine combination with the above, which are all worth a place in the garden.

The newer varieties of montbretias are among the brightest and most attractive of Summer flowering bulbs. Their merits need to be better known to be properly appreciated. The colors range through yellow to scarlet and are fine for garden decoration and lasting as a cut flower. The bulbs need protection during Winter where they are established, or they can be taken up and given treatment similar to gladiolus bulbs.

Continue to give dahlias every attention until cut down by the frost. These flowers are enjoying well-deserved popularity now. Many and increasing numbers of amateurs are falling under their spell, as a visit to the forthcoming dahlia shows will fully demonstrate. Each year we find improvements on the varied types, whether for use as bedding plants, garden decoration or cut flowers.

During September the perennial borders are gay with flowers of many hues and colors. The perennials, annuals, gladioli, cannas and dahlias vie to create a picture unsurpassed at any other season of the year. But the frost may be here at any time to take the most tender, although some may persist throughout October, or until the first real killing frost.

Some protection is necessary for the later blooming hardy chrysanthemums. They are well worth the little extra trouble it may take to keep early frost from injuring them.

If any alterations in the gardens are contemplated it should be done at the first opportunity. If these are carried out early in October the ground is warm and the newly planted stuff will commence to form root which will help them to winter well. It is best to transplant Spring and early Summer blooming subjects early in the Fall, and Fall and late bloomers in the Spring.

See that newly sown lawns do not suffer from drought. The late sown seed will need every encouragement to become well-established before severe frosts. Push on with moving and transplanting evergreens and avoid all unnecessary exposure of the roots to the sun and wind, and water well after planting if dry weather prevails.

Many varieties of fruit will now need attention. Apples and pears will be fit to gather when the fruit is easily separated from the tree, when gently lifted.

To keep grapes, they must be kept free from insects, and good bunches should be protected by cheese cloth bags.

THE MASSACHUSETTS AGRICULTURAL COLLEGE, co-operating with the National Association of Gardeners, has introduced a course for training young gardeners, where they can obtain both a theoretical and practical knowledge. Full information may be obtained by addressing

PROF. FRANK A. WAUGH,
Massachusetts Agricultural College,
Amherst, Mass.

Statice—Thymus

RICHARD ROTHE

STATICE, the Sea Lavender, is a large genus of the order *Plumbaginæ*, many species thereof inhabiting saline districts and sea shores. The mere mentioning of the name will bring back into the memory of older horticulturists, of European training, rows of bundles of tiny blue and lavender blossoms hung up for drying to be used for funeral design work of immortelles in vogue twenty-five to thirty years ago. Fashions and material have changed and many of us have nearly forgotten the sea lavenders with their tufts of long smooth leathery foliage and their graceful panicles. However, growing some of the best hardy perennial species today we will find that those graceful panicles of tiny blue and lavender blossoms during August can be used for the same purposes as we use *Gypsophila paniculata* in June and July. According to my experience the sea lavenders merit by far more space in our hardy borders than they have hitherto been given.



Statice latifolia.

The number of Mid-Summer flowering rockgarden inmates is not over abundant. *Statice* intelligently placed can be easily made an effective July and August feature. For perfect development all species require an open sunny exposure. On account of their deep root system they rarely ever suffer during prolonged draught.

The garden forms generally known are mostly natives of eastern Europe and Asia. *Statice eximia* produces panicles of handsome pale lilac blossoms; *Statice Gmelini* is distinguished by violet blue flowers; the stateliest species of the hardy sea lavenders, *Statice latifolia* shows freely branching heads in clear blue; while *Statice tartarica*, syn. *S. incana*, as the lowest growing garden variety adorns itself with purplish pink panicles.

All sea lavenders require a well manured and deeply dug sandy loam and may be raised from seed sown in cold frames in Spring or propagated by root cuttings. Their evergreen foliage requires leaf covering as Winter protection throughout northern states.

THYMUS

Of *Thymus*, a genus of the order *Labiata* consisting of mostly hardy small shrubs or undershrubs, all this note deals with are the few hardy herbaceous low creeping species of Central Europe and the British Islands. Under cultivation they form dense vivid green mats of

aromatic vines, which, during the later parts of June and in July appear covered with clouds of little blossoms. In height, not exceeding 2-3 inches, mountain thymes prove very pretty subjects for sunny rockeries and dry walls as well as for the filling up of crevices of slab stone formal garden walks. *Thymus serpyllum album* flowers snow white; the blossoms of *coccinea* are red; while *serpyllum splendens* produces flowers of magenta color. Our illustration, a reproduction of a photo taken in



Thymus serpyllum splendens.

Northeast Harbor, Maine, shows the marvelously rich floral effect which in the North is of a brilliancy never reached throughout the Middle Atlantic States.

The less known species *Thymus lanuginosus* resembles in habit of growth the *serpyllum* type. Its distinct characteristics consist of a woolly hirsute foliage of a mouse-gray shade and little flowers of purplish lavender hue.

Aside from open sunny exposure, mountain thyme thrive best in a light sandy loam. Stock can be raised from seed sown early in Spring. Propagation by division early in Fall. Plantations in northern border States should be protected by light leaf covering unless thick and permanent snow covering can be depended on.

AUTUMN GLORY AT ENGLISHTON PARK

(Continued from page 255)

maples, the yellow cucumber magnolia, the coloring oaks,—and I find the scarlet oak a finer tree than the red oak,—the golden tulip trees and red dogwoods. Such a planting as this with evergreens of every hue and character interwoven is as beautiful and restful a vision as one wishes, upon which to cast tired eyes.

These notes may give a few suggestions to garden lovers and planters. Fall inspires us toward certain kinds of planting, and Spring has her own especial lesson in which to instruct us. There is perfect harmony in heart and garden if one is keen and alert to all that Nature tries to teach us. Byron said in "Childe Harold" that there is no solitude when communing with Nature, and this is especially true with Nature in her Autumn garb.

The Rock Garden

ARTHUR SMITH

(Continued from the August issue.)

THE following descriptive list of alpine and other plants suitable for a rock garden must not be considered in any way complete, a brief selection only has been made of those considered best for American conditions, all of which have been cultivated by British specialists in rock plants for many years. In the case of several genera, hybridizers have been at work for some time and varieties have been raised which in a number of instances have proved to be more at home in lowland gardens than their types.

Acaena microphylla. This is attractive by reason of its showy crimson spines which are borne on the calyx. It has several distinct varieties and is used as an evergreen ground cover over bulbs. Spreads by creeping rootlets and may be propagated by division, seed and cuttings. (Native of New Zealand.)

Acantholimon glumercum. Height six inches; leaves evergreen. This has the advantage of blooming later than most kinds. July to September. It has rose-colored flowers. Slow growing and requires all the sun possible. Propagated by seeds, which are slow in germinating; by cuttings made in late Summer and wintered in a cold frame; division is possible, but it does not take kindly to this method. (Armenia.)

Achillea. Most of this genus are too coarse for the rockery, but *tomentosa*, with its downy foliage and yellow flowers, has a distinctive effect, especially against red sandstone rocks. This is native both of this country and of Europe. *A. rupestris*, considered by some a better kind, has white flowers. (Native of Italy.)

Adonis vernalis. This has showy, large yellow flowers in early Spring. While not classed among the choicest of alpine, it is an easy doer and readily raised from seed. (Apennine Mountains.) Other species are *amurensis* and *pyrenaica*.

Æthionema pulchellum. Flowers pink, May and June; leaves glaucous. This is a beautiful plant allied to *Iberis*, and easily propagated by division in the Autumn. Should have a sunny position. (Central Asia.)

Alyssum saxatile compactum. Well known, and one of the most popular of rock plants. As its name suggests, the variety *compactum* is closer growing and therefore more suitable for rock gardening than the original. There are several other forms having different shades of yellow flowers, and one with double flowers and variegated foliage, but none are really better than the above. Easily grown from seed.

Andromeda polifolia and *glaucophylla*. These small native sub-shrubs are not so well known as their beauty deserves. They should have at least some shade, with plenty of leaf mold or peat in the soil. They have neat and compact growth, but become rather too large for a small rockery.

Androsacca. Rock Jasmine. Alpine Phlox. No genus of the mountain flora is more charming than this. It is principally found in the higher ranges of the European Alps and Pyrenees, and there are one or two species on the Himalayas. They are not of the easiest culture and it is useless to attempt growing them unless the air is absolutely pure at all times, for they will soon die in the neighborhood of towns. They like a little shade, from an overhanging rock, for instance, that is sufficient to shelter them from the midday sun. They should always have

small stones placed around their collars. Propagation is by seed sown in pans, and by division in Autumn.

The most popular species is *carnea*, having flesh-colored flowers with yellow eye and is a most beautiful species. It has trailing shoots. (Himalayas.) *Sarmentosa* is a charming plant also from the Himalayas. It is of rather small growth and should be covered with glass during the Winter. Limestone chips are the best to use around its collar; *villosa* is a great favorite with alpine growers in Britain. It has gray leaves thickly covered with fine hairs and its pink flowers are borne in umbels. This species should have some broken limestone mixed with its soil. Among other species are *chamaejasme* with crimson flowers, also liking limestone; *glacialis*, very dwarf, with pink flowers, rather difficult to grow; *filiosa* is a vigorous grower with rose-colored flowers, likes lime; *vitaliana* is distinctive by reason of its yellow flowers, and is a delightful object when nestling in a rock crevice; dislikes lime.

Anemone. Most botanists today place the lovely native *Hepatica triloba* in this genus. It is splendid for the rockery provided a shaded spot can be found for it, and is one of the most valuable and earliest of Spring flowers, and the coppery tint which its foliage puts on in Winter produces a beautiful effect at that season. It is common in our eastern woods among rocks, from whence it can be easily collected, as it transplants readily, but care should be taken that its roots are not doubled up in replanting. It is native from Labrador to Florida. *A. fulgens* has scarlet flowers in May and June and makes a brilliant spot of color, and it is a vigorous grower; *occidentalis*, also known as *alpina*, is a western native species with bluish-white flowers in May, it thrives best when limestone is mixed with the soil. All Anemones can be increased both by seed and divisions.

Aquilegia. Most of this beautiful genus are too tall for rockeries, but there are several alpine and sub-alpine species, native of North America as well as of Europe and of Asia, which can be used. *Alpina* is native of the Swiss Alps and has blue flowers; *glandulosa* is another dwarf species from Siberia and is one of the handsomest; it has blue and white flowers; a variety of this, known as *stuarti*, is equally charming and longer lived than its parent; *jonesii* is the dwarfiest and most tufted of Columbines; it has blue flowers in July and is native of Wyoming and Montana. None of this genus are really long lived plants as perennials go, but as they are easily raised from seed there is no difficulty in keeping up a stock of them.

Arctostaphylos. This is allied to the Trailing Arbutus, and like it, evergreen. There are several species native of America, but only a few, which are mostly trailing, are hardy in the northern states, these being quite good for rockeries. The flowers are small, white tinged with red, but the chief value of these plants is for the effect of the red fruit, which persists during Autumn and early Winter. The hardiest species are: *Uva-ursi*, Bearberry, native all over the northern States and south to Mexico; *nevadensis*, found on the higher mountains of California, has larger flowers and foliage and should only be used where there is plenty of room; *tomentosa* is a more upright species native of the northwest; *alpina*, the smallest, grows as far north as the Arctic regions. Partial shade is beneficial to them, and when not covered with snow, light protection from Winter sun is advisable. Propagation is by cuttings of mature wood taken late in Summer and rooted under glass.

Arnebia echioides. Prophet Flower. This is remarkable for the five dots which it has upon its yellow flowers, black

at first, but which gradually fade away. These dots, which are legendary as marks of the fingers of Mahomet, have given the plant its common name. It is exceedingly pretty and does best with partial shade. Easily propagated by stem or root cuttings and also from seed. (Native of the Caucasus.)

Aster. Of this well known genus *alpinus* is the only species suitable for rockeries, and for this purpose is very popular in Britain. There are varieties with pink, blue and white flowers. (Occurs in the Rocky Mountains.)

Aubrietia. Rock Cress. This is generally considered as one of the indispensable rock plants, it being unequalled in beauty, hardiness and ease of culture. It is, however, of rather a rambling nature. *Deltoidia* is the most important species, with purple flowers in Spring. *Fire King* is a variety with crimson flowers; there are *campbelli* with violet and *leitchlini* with rose-colored flowers. The general practice is to clip them back after flowering. They withstand drought well and should have a sunny position. Increased by division and by seed.

Campanula. Under the name of Canterbury Bells this genus has for many generations been one of the indispensable plants of old-fashioned gardens. There are also a number of alpine species, of which some at least should never be excluded from rock gardens. One of the best known of the latter is *carpatica*, which has both blue and white flowers. This is native of the Austrian Mountains, and has several named varieties, of which *riveralea* is the best, having rich blue flowers, and is one of the most pleasing of the Harebells; *rotundiflora* is the common Harebell, and is found in Europe, Asia and America. The species having the darkest blue flowers is *pulla*, from the Austrian Mountains. A rather rare western American species is *scutcri*, but it has a more straggling growth than the others mentioned.

Coptis trifoliata. Gold Thread. This is a small evergreen found on the Adirondacks. It receives its common name from the slender, thread-like, golden-yellow roots. Flowers, which are both white and yellow, appear in June. Should have a partially shaded place and requires plenty of moisture. While not one of the choicest of rock plants, it is worthy of a place that can be filled with nothing better. Propagated by division and by seed.

Cornus. Even among those possessing considerable horticultural knowledge are to be found many who are unaware of the two beautiful dwarf species, native of this country as well as of others, which this genus contains. Their beauty will to some extent be realized from the fact that they are practically miniatures of *C. florida*, as, like it, it is their bracts, not flowers proper, that are the principal source of their attractiveness. *C. canadensis*, Bunchberry, is one of those chaste gems of the floral world which delight all plant lovers. It grows about six inches tall and spreads by underground stems. It is generally at its best in July, after then its beauty is prolonged by the red fruit and foliage; *succica* is very similar and quite as handsome, although its "flowers" are slightly smaller, but they have the advantage of appearing a month later. They should have partial shade, and it is impossible to supply them with too much water during the Summer.

Daphne. Of this genus *enclorum* is well known in borders, but it does better under rock garden conditions. Its fragrant and beautiful pink flowers in Spring and later on delight all who know it; *blagayana* has white flowers which are also fragrant and is one of the best of the genus for the rockery. It is rather more trailing in its habit than the other, and can be readily propagated by layering. Daphnes prefer a soil containing lime and should have a top dressing of rich, gritty compost shaken among their stems every year.

Dianthus. This genus contains a wide range of well-

known plants from the Sweet William to the Carnation. A few of the dwarf hardy pinks have much to commend them for rockery purposes. They like plenty of sun and should have their collars surrounded by small stones, limestone chips being preferable. The following are the best suited for rock gardening, although there are others which may be used: *Alpinus*, *glacialis* and *cinnabarinus*, all native of Europe and Asia. Propagated by seed and by cuttings.

Dodecanihcon. Shooting Star. American Cowslip. This genus is spread all over North America and is also found in Asia. It contains some charming and graceful rock plants, which require a cool, moist, partially shaded bay to do their best. The flowers of individual species vary much in color. The most common is *media*, which is found from Maine to Texas; a variety of this, *integrifolium*, also known as *jeffreyanum*, with rosy-red flowers, is native of the Rockies. The most beautiful species is *cleve-landi*, which grows in California, but it is not hardy in the northern States. Propagation is by division of the crowns and by seed.

Erica. Heath. The Heaths are mostly compact in growth and carry a profusion of flowers and are well suited for rock gardens. Those best known in this country and which are hardy in the northern States are: *vagans*, Cornish Heath, and *vulgaris*, (*Calluna vulgaris*). The writer has known *vagans* to go through the Winter all right without protection except that it was in the shade, where the temperature fell to twenty-two degrees below zero; and *vulgaris*, which is the Scotch Heather, has withstood thirty-five degrees below zero in an exposed place, but covered with pine boughs. There are both pink and white flowered kinds of these. *Carnea*, Alpine Forest Heath, is little known in this country, but it is a jewel among the hardy Heaths and is the most popular of the genus among the rock gardeners of Britain, it being as hardy as a lichen. It has rosy-purple flowers early in the year; like the others, it has white varieties. This likes some limestone in the soil, and may be propagated by division; but they are all easily raised from cuttings of the growth of the year taken in August or September, rooted in sand in a close cutting box, and when rooted transferred into small pots and wintered in a cold frame. The compost for the pots should be three parts leaf mold and one part sharp sand. As they grow slowly, it is best to carry them for a year in pots, placing shade over them in Summer. There are other *Ericas* more or less hardy in this country, but the above three are the best and most reliable.

Dryas. Mountain Avens. Evergreen trailers allied to *Geum*, of which the following are native: *octopetala*, which is the most beautiful, bearing numerous white flowers in July, but it is too rampant for a small rockery; *drummondii* and *integrifolia* are more compact in growth. Their evergreen foliage is sometimes browned by Winter sun; this can be prevented by a few pine branches. All are native of the New England mountains. They may be propagated by division in the Autumn, also by cuttings and seed.

Erinus alpinus. This is one of the most charming of the European alpiners, having purple flowers by April until June; in some varieties the flowers are white and crimson. It is best raised from seed sown where the plants are to stand.

Gaultheria procumbens. This a common eastern American creeping plant which does well in the more shaded part of a rockery, as do also *ovalifolia* and *myrsinites*, natives of the Mount Ranier district of the west; the last mentioned is very small, only two inches tall. While their white flowers are very pretty, they are principally desirable for their red berries, which remain throughout

(Continued on page 262)

September Flowers

BERTHA BERBERT-HAMMOND

AFTER the long, flowerless days of Winter, even so pallid and inconspicuous a bloom as the Snowdrop, "The first pale blossoms of the unripened year," is enthusiastically welcomed and its praises are sung in poetry and prose. But after a Summer of varied and unrestrained bloom, to gain attention and admiration the late blooming flower must be most generously endowed with Flora's choicest gifts. In this instance, as in others, Nature has done the work well and has glorified the Autumnal roadside, field, and garden, with the gayest and fairest of flowers, robed in brilliant reds, royal purples, and golden yellows. Mary Howitt expresses the thought thus:

"There are flowers enough in the Summer time

More flowers than I can remember—

But none with the purple, gold and red

That dye the flowers of September.

The gorgeous flowers of September!

And the sun looks through

A clearer blue

And the moon at night

Sheds a clearer light

On the beautiful flowers of September."

Wild flowers and those of the garden, annuals and perennials, vie with each other in contributing rich hues to enhance the brilliancy of the floral festival. The French marigolds, and also the taller African sorts with their profusion of gorgeous flowers that display golden yellows, warm browns, and velvety maroons; the improved zinnias, far removed from the indistinct coloring of the old-fashioned varieties; and the tall growing Golden Glow with its myriad of bright hued, double flowers nodding on long, graceful stems, effectively carry out a very decorative garden scheme in green and gold. Field and meadow owe their dazzling golden splendor to the yellow daisy, *Rudbeckia hirta*; wild sunflower, *Helianthus*; Jerusalem artichoke; Yellow Star, *Helenium autumnale*, and numerous other yellow flowers, besides the very numerous species of the well known and highly conspicuous Golden Rod. Almost hand in hand with the bright Golden Rod comes the starry asters in many varieties and varied colors, giving those charming indescribable touches of lavender and purple to hillside and vale, that adds such wealth of color to the radiance of the countryside in September. In the garden, too, improved sorts of China asters with their profusion of bloom make a wonderful display that for beauty and splendor cannot easily be surpassed.

The graceful *Cosmos* with its feathery foliage and beautiful, long-stemmed flowers is generally classed among the late blooming annuals, but an early flowering strain has been developed, one sort coming into blossom in September and another, an extra early kind, it is claimed, from seeds sown in the open ground in May will produce bloom in August and sometimes even before then.

Though most varieties of chrysanthemums bloom late in the year, there are over a dozen covering a wide color range that are known as September flowering chrysanthemums.

The hardy Japan anemones both in the single and double flowered kinds lend to the garden a pleasing light color that extends well into Autumn. The semi-double variety, "Queen Charlotte," that bears flowers of a silvery pink color is worthy of special attention.

As mere "weeds" the pickerel weed, *Pontederia cordata*, and the blue weed, or blue thistle, *Echium vulgare*, do not find a warm reception but they possess the blue color

which is welcome in flowers. The blue of the closed or bottled gentian, *Gentiana Andreæsi*, though of a deep shade at the top of the flower is of a lighter color at the base. This blending seems to render more intense the blue at the tip of the curiously closed, bud-like flowers. It remains, however, for the lovely fringed gentian, *Gentiana crinita*, to supply in its modest way the hue that artists claim nearly matches the blue of the sky and of which the poet, William Cullen Bryant wrote:

"Blue—blue as if the sky let fall

A flower from its cerulean wall."

The continuous blooming, perennial phlox with its improved color scale plays an important part and the dahlia, gladiolus, and other flowers join in to make the September garden colorful. The gayest of them all is the scarlet sage, *Salvia splendens*, whose numerous spikes of vivid red rise like flaming plumes above the foliage. Only the gorgeous Cardinal Flower that lights up moist meadows and the banks of streams equals this intensity and brilliancy of red coloring that crown the September pageant.

THE ROCK GARDEN

(Continued from page 261)

the Winter. They are rather slow in becoming established, and the soil should be free from lime.

Globularia. Globe Daisy. The alpine kinds of this genus form evergreen carpets and their pretty blue flowers appear in July and August. They prefer a soil containing limestone, but will thrive in ordinary rock garden compost. *Trichosanthes*, native of Syria, is perhaps the best known, while *cordifolia*, *nudicaule* and *nana*, natives of Europe, are also hardy. They come easily from seed, and divisions may be made in the Fall.

Herberia rhodopensis. This is a perfect floral gem, having flowers like miniature Gloxinias. It is native of the Balkans, growing in dense tufts with flower stems only an inch or two tall. It should be placed between rocks, so that the latter will afford it some shade. It can be raised from seed and propagated by division in the Spring.

Iris. Those whose only experience of this genus is of the stately species native of our own swamps and of other countries will not be likely to think of them as rock plants. There are, however, several choice species which, by reason of their diminutive beauty and rarity can only have a chance to grow without being smothered by coarser things, and have the attention they require and deserve, in a rock garden. Upwards of a score of species are desirable for this situation, of which the following are the best suited to American conditions: *Bakeriana* is a little bulbous species about six inches tall, with blue and white scented flowers in early Spring; *crinata*, an American alpine from the mountains of Kentucky and Carolina, is one of the choicest gems of this genus, and bears its beautiful flowers in May, their standards being lilac and the falls blue, crested with yellow; *gatesii* is another beauty, native of Armenia, with silvery flowers in June; *histrion* is a bulbous kind and one of the earliest; the writer has had its pretty blue and yellow flowers push through the snow in February; *pumila*, native of the Crimea, has violet flowers with a white beard; this species has many varieties, with flowers of different shades. Irises can be readily grown from seed, and can also be propagated by offsets and by division, according to the character of their roots.

(Concluded in October Issue)

Departments of Foreign Exchange and Book Reviews

TRITOMAS.

WHEN the warm September days give place to cooler nights; when the Summer flowers begin to fade and fail, there are to be found amongst our hardy garden plants some that bring rich and intense colorings as their blooms unfold. Conspicuous in this category are Tritomas, which, amid faint suffusions on creeper and on tree, appear sentinel-like, giving to the borders a new splendor, and an added glory in the waning of the year. They are known to some as Kniphofias, or Torch Lilies. To a far greater number, perhaps, they are more readily recognized under the familiar name of Red Hot Poker. When the spikes reveal themselves in tones of vermilion, and in scarlet and yellow, we think that Torch Lily is appropriate, as they are veritable flames of color in these shortening days. Their very presence is an indication that Autumn stands like a waiting guest at the door; nay, has come, indeed, and is even now upon the threshold. It is in signs like these that Nature writes her story. And yet, 'tis true, she is a kindly visitor. As yet, her presence is but little felt, for some of our trees are garbed in all the loveliness of their Summer green. There is still a soft consenting atmosphere making the garden a pleasant place in which to linger in days that are fair. Presently, she will touch with her icy fingers the trees and hedgerows, giving to the leaves another beauty with her magic wand. By-and-by she will paint the countryside in more enchanting colors still, that each nip of frost will but intensify, until there comes a night, colder than the rest, when leaves will flutter to the ground, and then there will be seen—

"The wonder of the falling tongues of flame."

But that is yet to be, as Autumn may be genial, kind and good for a time; still it has to be said we stand at the season's gateway, and pause amid the flowers that keep us company. For resplendent dress, there is none to surpass the richness of Tritomas. What a time we have grown them, as we look back across the years, and how seldom, if ever, they have disappointed us! Their culture, too, how simple; how few their requirements, and how rarely they have entailed removal! Michaelmas Daisies, albeit prodigal with their blossoms, cannot compete in brilliancy with the flaming spikes of Tritomas that lighten the somberest corner, and then, like a tired child, go to rest.

It is, we think, because they are easy to grow, and so accommodating, that many folk look to them year by year, and regard them as true "partners in the glory of the garden" in these later days.

Conditions of Success.—And to have Tritomas in all their beauty, one is not bound down by exacting conditions; in fact, their culture is so simple that all may grow them, if they are prepared to give them a good start and a sunny position, with a thought to drainage. More than this they do not ask of us, as they will go for years without the necessity for taking up and dividing. They are amongst the few plants about which one is correct in saying that "they improve with keep," as the chief thing one need trouble about is to afford them some protection in Winter by covering the crowns with leaves or ashes or straw manure, giving them in the Spring a dressing of rotted dung. Spring is the best time also to plant them. A good sandy loam suits them to perfection.

Varieties.—There are many sorts amongst Tritomas that are so vivid in coloring that to appreciate them fully needs an intervening space, and if planted not far away from a shrub or wall over which climbing plants run, the spikes show to the best advantage. Such is *T. uvaria*, one of the oldest and best, met with frequently in country gardens in flaming color. *T. nobilis*, with orange red spikes, is tall and imposing, often 6 to 8 feet in height. *Nelsoni* is comparatively dwarf, with reddish crimson spikes. *Egypt*, tall, of a rich amber color. *Leda*, blooms early, of a compact habit, spikes of coral red with orange shading, a very attractive sort; *breviflora* is a late flowering sort, of slender growth, with pure yellow spikes. *Lachesis*, of a rich apricot color, distinct and handsome.

This is only a short list of some of the members of this very charming family of hardy plants, and though most of them are just now in the prime of their beauty, very often one may have glimpses of them far on into October in a mild autumn, when many other plants have ceased to bloom. If you possess Tritomas, you may go into the garden some dull October day and find a few belated spikes amid others showing points of vermilion and yellow, standing almost alone, and if you do not express it in so many words, you think they share the honors with the few

late lingering Roses on the wall, or the leaves of the Virginia Creeper, here brown and amber, there deepening into crimson carmine ere they fall—a richness that is carried to the last.—*Irish Gardening*.

BEAUTY IN FRUIT TREES.

ONE finds wide differences in the management of plants. The object in view is the same, but the treatment to that end accepted by one grower is often diametrically opposed by another cultivator. It does not appear to me of the slightest moment what the means may be, provided that the end is achieved. A striking example of opposite methods is found in fruit pruning. Here one finds a man who cuts every shoot hard back and there one who refuses to use knife, saw or secateurs. Which of these is taking the wiser course? Personally, I should favor the latter system; covering my opinion by saying that both are wrong, since the correct course is to find the perfect medium between the two extremes.

In regard to root-pruning, the sharp division comes between the man who will, and the man who will not, do it. We see the man who will produce a tree which is handsome in its productiveness and the man who will not produce a tree which is handsome only in its straight, osier-like growths. The former goes directly to the *raison d'être* of the presence of a fruit tree in a garden. The latter goes merely to cumber the ground.

It is not, as is too commonly thought by the tyro, difficult to decide when a fruit tree demands root pruning; on the contrary, it is very simple. When the young growths are both numerous and strong—too exuberant to develop perfect blossoms—the tree requires root pruning, with intimately associated, intelligent branch pruning. Unfortunately, the grower frequently neglects the former and directs his efforts towards the removal of every shoot. Obviously the second state must be worse than the first. The roots are still too luxuriant and the growths are multiplied quite three-fold with no measurable loss of excessive vigor. The error lies in commencing above instead of beneath the surface. Although absence of blossoms on strong shoots is a sound reason for root pruning it is not the only one. Any tree that makes more than 2 feet of new growth in a season ought to be considered as a subject for this operation, and it should be dealt with as judgment directs.

The process of root pruning may be divided under three heads as follows: Trees which have been planted one season and which have made rampant growth; older trees, up to about ten years, which grow too luxuriantly to have sufficient energy to produce fruit; and still older trees suffering from the same serious disability.

To deal with the first group is the essence of simplicity. The roots are dug from their beds and immediately replanted, with the soil packed hard to their roots. If a strong root is seen it is reduced in length, but small importance is attached to these details, the repressive action coming from the mere act of lifting and extremely firm replanting.

Trees to the age of about ten years must be handled differently, since they will be much stronger in root and branch development, and individual judgment must be brought to bear on the task. A trench must be cut wholly to encircle the tree and at a distance of 3 feet or more from the bole, according to size and age. Its width may be about 15 inches and its depth 2 feet to 3 feet. If a sharp spade is used the strong roots, which cause the excessive luxuriance, will be easily severed, leaving, however, rough cuts. These do not, of course, callus over as quickly as clean wounds, and they, therefore, should be pared off smoothly, preferably from underneath, upwards and outwards. In the generality of instances packing back the earth very firmly in the trench completes the operation; in no circumstances must natural or concentrated food be mixed with the soil replaced. In the possible event of a tap-root further trouble is involved. A cross trench must be cut directly to the bole and the down-striking root sawn clean through or the whole of the previous labor will be wasted.

The third group, comprising older trees, must be root pruned in two seasons—half-way round in the first year and the remainder in the ensuing Autumn. The details of working are on all fours with those advocated in the preceding paragraph.

The best time for root pruning is from the end of September to the end of October, but it can be carried out successfully at any convenient time in the Winter when the weather and the soil conditions are favorable.—*The Garden*.

Address of Robert Cameron, President of National Association of Gardeners

Delivered at the Annual Convention in Boston

Let me welcome you to our city. Some of you have been here before but at that time our Association was merely a handful of men compared with what it is today. The Association has grown with leaps and bounds. We have members in almost every state of the Union, and some of you have come a very long distance. I assure you that you have come to a city that welcomes you and here in the vicinity of this city you will see some of the oldest gardens in this country. In this building (Horticultural Hall) you will see paintings of men who were remarkable horticulturists. Let me ask you to look earnestly at these paintings of men who in their day were masters of their specialties. In this building you will find the largest horticultural library in the world. It is not only the largest, but it contains the oldest and rarest books on horticulture. The Massachusetts Horticultural Society has just published a catalog of the books in the library I have been telling you about. It is conceded by authorities in this country and also those of Europe, to be the most complete library catalog that has ever been published. Therefore, I say to you members who have come from a distance that if you did not see anything else in the way of horticulture, but what is to be seen in this building, you would be well rewarded in coming here.

We could have held our meetings at the Brunswick Hotel, our headquarters, but to some of us this old Massachusetts Horticultural Society, that has done so much for the uplifting of horticulture in this country, is held sacred and undoubtedly our meetings with such surroundings will be more successful than if held anywhere else in this city. Therefore, it is with this spirit of intense love of gardening that we welcome you to the Hub of Horticulture.

When you were invited last year in New York to come to Boston, the members from this section had little thought at that time of the destruction that a New England Winter could accomplish to some of the finest estates in Massachusetts. Some of the estates which we had intended at that time to show you had to be given up entirely, owing to the destruction of the fine trees which spoiled the beauty of these estates for the time being. An ice storm of such severity was never known of in this section before. On our visiting days you will still see some of the horrible destruction of this ice storm and I know then that many of you will be pleased that you haven't to garden under such difficulties as gardeners who live and work along these bleak shores. Fortunately, along the seashore, the effect of the ice storm was not felt so severely, consequently it was decided to show you some estates along the North Shore which I hope you will enjoy seeing.

Throughout the country during the past year business conditions have not improved greatly. Consequently our profession has suffered somewhat from that cause. One particular outstanding cause for so few new large estates being developed at this time is the outrageous prices nurserymen are charging for plants. The injury that is being done to our profession is serious and until a law is passed to protect customers from such scandalous prices, gardening and horticulture of every description is to suffer. There is no real reason for this condition as labor is plentiful and a good deal cheaper. Our aim as professional gardeners is the beautifying of the country, therefore, our association should do its utmost to get the material such as plants, at reasonable prices so that everyone who so desires can obtain them to beautify their homes. Quarantine Bill No. 37 is one of the best things that has happened in a century to enable the nurserymen to get rich quick. This has given them an excuse for the unreasonable prices with the pretext that there are not enough plants to supply the demand.

The love of horticulture is steadily increasing and never before has there been any better exhibitions of such popular plants as Peony, Irises, Phloxes, Roses, Gladioli and Dahlias. The attendance at these exhibitions has been very large. A most wonderful exhibition of native plants was staged by the President of the Massachusetts Horticultural Society, Mr. A. C. Burrage. This was a unique exhibition and drew the largest attendance of any horticultural show that has been staged in this country. It was open to the public for ten days and 83,000 people attended this comprehensive, instructive and wonderful exhibition. New York, Philadelphia, Chicago, Indianapolis and many other cities and towns have had wonderful exhibitions of outdoor and indoor plants and flowers, thus indicating that there is no lack of enthusiasm in gardening throughout this country.

There were quite a number of men in the early part of the year looking for employment. Owing to the economic conditions of the country there were not so many positions filled as was anticipated. The result is so many asking for change was brought about. The result is a set of many of the large estates reducing

the number of men in their employment, thus making it in many instances almost impossible for superintendents and head gardeners to run the estates with credit to themselves. Our country at the present moment is suffering acutely from coal and railway strikes and the outlook at the present time is anything but encouraging to those having large greenhouses on their estates.

There is one thing that we all ought to feel proud of and that is that there isn't a semblance of a union in our association. This is a point that we ought to impress at all times when there is an opportunity on the public that the motives and aims of the Association are to develop greater interest in horticulture and to bring about a closer bondship amongst all engaged and interested in gardening. To so elevate the standard of the profession of gardening that those who engage in it will command respect not only from those who employ them, but from all others.

The local branches of the Association are of great benefit to the gardeners who live in the vicinity where a local branch is located. At the meetings of the branch, matters of importance may be discussed and later on may be taken up at the annual convention. There are now four local branches and undoubtedly there will be many more in the near future. These local branches are especially useful if a convention is to be held in a city where a local branch is located. I would strongly urge members to form more local branches over the entire country.

Young assistant gardeners are no more plentiful than they have been of late years. In previous times Great Britain, Germany, Switzerland, France and other European countries kept us well supplied, but since the World War there is a decided shortage. Young American boys have not taken kindly to gardening under the old way of training. It gives me great pleasure to announce at this time that the Massachusetts Agricultural College at Amherst in co-operation with the National Association of Gardeners, has made arrangements whereby a special course of training for gardeners is to be established. The Massachusetts Agricultural College will conduct the theoretical instruction, while the National Association of Gardeners will take the responsibility of seeing that the training in the practical work is carried on properly. The course of training is planned with the expectation of fitting men for practical gardening, either as commercial florists, nurserymen or as gardeners on estates, foremen and superintendents in parks.

The gardener of the future has not only to have a practical training, but he must have a good grip of theoretical knowledge which can only be obtained properly in a course of instruction such as is to be given at Amherst College. The first students are to be admitted on September 27, 1922. I would ask members to try and interest boys who are interested in gardening to take up this course at Amherst and to give them all the encouragement possible.

The Massachusetts County Agricultural Schools are turning out useful boys and many of them are interested in gardening. I have had several of them and they have given good satisfaction. During our sessions these courses will be discussed and I have no doubt many new useful ideas will be obtained.

Throughout the country there is evidence that the public is being aroused at the wanton destruction of our native flowers and plants. Clubs and societies are urging their members to do all in their power to protect the native flora. Let our Association go on record as opposed to the ruthless and thoughtless pulling and destroying of our native flowers and plants along our roadsides by automobilists and others. Let us also protest against the destruction of our beautiful laurel and other Christmas greens for decorations.

Our Association should continue to place itself on record as opposed to Quarantine Bill No. 37. I am like the nurserymen, I have changed my viewpoint. At one time I believed this Quarantine No. 37 was the very best thing for our protection. I have two reasons for changing my opinion of this bill. The first is because some of our most lovely garden plants are debarred from entering this country and the second is because we have no protection from the profiteering nurseryman. If we had had some protection from these unreasonable prices then I might have a different opinion about this quarantine bill. If these exorbitant prices continue, gardeners will be forced to start nurseries on the estates where they work. What we want are well grown plants at less money and more gardens.

School gardening is of immense value, not only to the children but to the parents also. What the children are taught about gardening creates a love for horticulture and in this way the beautify-

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National Association of Gardeners

Annual Convention, Horticultural Hall, Boston, Sept. 12, 13, 14, 15

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 Martin C. Ebel, Summit, N. J. **Secretary**
 Montague Free, Brooklyn, N. Y. **Treasurer**

Boston most assertively demonstrated its right to its claim of being the horticultural hub, at the convention of the National Association of Gardeners. Chairman W. N. Craig and the members of the various committees are to be congratulated at the great success of the convention, the banquet, and the two days' automobile trips among the famous estates surrounding Boston, and the many historic points that were visited, which proved of immense interest to the visiting members, as probably at no other place in the country could such highly interesting and instructive entertainment be provided to a gathering of the gardening profession. Briefly summarized, the Boston convention was a great success.

DIRECTORS' MEETING

The Board of Directors and Trustees met in the forenoon of Tuesday, September 12, at the Hotel Brunswick, the following members being present, Robert Cameron, presiding: George F. Stewart, Henry E. Downer, William Kleinheinz, Thomas W. Head, James Stuart, John Barnet, W. N. Craig, Alexander Michie, D. L. Mackintosh and M. C. Ebel.

The purposes of establishing branches, including the resolutions of the Newport, R. I., branch, were fully discussed and it was decided to submit the views of the directors to the convention. The future policy of the Service Bureau also received careful consideration which was to be discussed further at the business sessions of the convention.

The Board generally discussed what the future policy of the association should be and recommendations are to be made from time to time when the right opportunity presents itself to put them into effect.

James Stuart, Thomas W. Head, Henry E. Downer were appointed a committee to audit the books of the Secretary and the Treasurer, following which the meeting adjourned.

TUESDAY AFTERNOON SESSION

The convention was called to order at 2:30 P. M., W. N. Craig, of Massachusetts, acting as chairman, who addressed it as follows:

I am very glad to welcome you, on behalf of the local branch of the National Association of Gardeners, to our convention here.

The first convention of this association was held in Boston at the time of the National Flower Show in 1908, with an attendance of six, and we held a convention in 1915 also, when Mr. Curley was mayor. Our membership is now about eleven hundred, embracing a large number of the best professional gardeners of the United States. This organization came into existence as a sincere effort to elevate the standing of professional gardeners, not as a trades unit, but as such a unit as would appeal to employers of estates throughout the country. We want to work in co-operation with the estate owners, and have done so successfully, as is proven by the fact that we have on our list a large number of the most prominent estate owners of the United States.

We have several prominent speakers here this afternoon to address us and I don't want to take up any more of your time.

I am sorry that I cannot introduce to you as the first speaker the Honorable James M. Curley, of Boston. He is unable to be here because politics are humming now and politicians are busy. This is Primary Day. But Mr. Curley has sent here E. Mark Sullivan to take his place. Mr. Craig introduced Mr. Sullivan.

MR. SULLIVAN SPEAKS FOR THE MAYOR

Mr. Sullivan, welcoming the attendants to the convention, and expressing regrets that Mayor Curley could not be present, said:

Now the Mayor feels, out of a keen appreciation of the importance of your work, that this convention held in our midst merits the formal acknowledgment of the government of the city of Boston, and he regrets exceedingly that the immediate necessities of the great issue which is before him and the electorate for decision prevents his being present on this occasion to say such a word as would be becoming to the chief executive of the city.

However, I want to assure you that I come instead not as a mere perfunctory and one without keen sympathy for your great work. I, too, bear close kindred to your work. There comes from my native town the president of this association, Mr. Cameron, who is now located there, the town of Ipswich, and as far back as I can remember my father was either park commissioner or cemetery commissioner of our town, and in fact, the entire working force of both departments.

So that the work that you men are accomplishing in a large, scientific way, my father performed within his small village in a less skilful, but a most industrious manner.

Your work is something more than a mere livelihood to you men. You speak in various languages to the great public that rushes by in the train or rushes by in the automobile, giving a casual glance at these great works that you have laid out with so much thought, pains and care. And after all, they represent your creative work. From recent philosophy we understood there were several contributing causes to any work, and the main cause was the method cause, the conception, and yours is translated into these magnificent plots, of so many of which Boston can boast.

Take the magnificent estate Mr. Cameron is presiding over, owned by Mr. Crane. It is set there on a high cliff at the mouth of the Ipswich River, with a commanding view of the entire Gloucester Bay that reaches from the deep arm of Cape Ann even to the Isle of Shoals. As a boy, that estate and its possibilities were first regarded by John B. Brown. Today Mr. Cameron has under his charge an estate that is so highly valued, not because of the buildings that are set upon it, palatial as they are in character or structure, but because of the fine art which it has disclosed to men who can appreciate it and all the possibilities of that magnificent thing.

The city of Boston is indeed the city that eminently merits the great honor you confer upon it by meeting here again. Boston and its people have been quick to appreciate the work of beautifying its parks. We have been generous, even to the point of being charged with extravagance, in our appropriations for that purpose.

Flowers they express so much! It is a tribute to Nature and to Nature's God. It is a cultural expression, capable of appreciation by all men, because the basis of real culture is not necessarily letters and learning. There may be a refinement, a cultural refinement even in men and women who know very little of what is contained in the books.

Boston has felt your influence. Boston has sought your aid and skill. It is the hope of our Mayor that we may continue to promote what may be spoken of as these vast enterprises of horticultural endeavors, because to beautify our city means to have a refining influence upon those who come to dwell in our midst. Therefore, my coming here today on behalf of the Mayor is to represent his sincere purpose, as you have seen him accomplish it, in these great endeavors, the public playgrounds and those vast expanses for recreation that are to be found here. So it is that I, too, accept the delegated invitation sincerely to come here and speak in his behalf before you good men and women.

I hope the fruits of this convention will be far reaching, will be permanent, and that as a result of it all you will leave this city strengthened in numbers, strengthened in influence and with an increased initiative for continued progress.

Mr. Craig announced that William Gray, superintendent of the estate of Princess Christopher of Greece at Newport, was to reply to the address of welcome from the Mayor or the Mayor's delegate. As he was unable to be here, he asked D. L. Mackintosh, of New Jersey, to do that duty.

MR. MACKINTOSH RESPONDS

Mr. Mackintosh responded as follows: It would be a hard thing for me to reply in an intelligent manner to all that Mr. Sullivan said at a few moments' notice.

You know you are a much older city or a much older part of the country than what we are in New York and New Jersey. Last year when we had the convention in New York our now honorable president took the liberty and had the audacity to twit us that we were all wrong in colors. Well, that wasn't very easily swallowed. He told us that we had nothing but glaring red and blazing yellow and that if we would come to Boston we would see beautiful pinks and mauve and lavender. I suppose your exhibition is put up as a lesson for those of New York to take away with us.

I don't wonder very much at that. As I stand here looking into your different faces I can readily understand that the most of you instead of being brought up on Borden's Condensed Milk were brought up on porridge and sorduck, so that you grew up to the age of manhood and discretion, if not you, your fathers, in the land of the Scotch bluebell, the most lovely shade of blue that any painter has been able to produce, and in your eyes, your mind's eye, you carry that shade of blue. And then the great majority of you had the pleasure of seeing a thousand acres of the most beautiful pink that ever could be put together in the form of heather spread over the mountains of Scotland and the wild, rugged hills of Ireland. No painter has been able to make any pink shade to surpass the heather.

When you have so many of these men with these fascinating colors in their mind's eye, do you wonder that these colors predominate—pink, blue, mauve? We in New York are of a different type altogether. I heard President Wilson say that New York was the largest Italian city in the world. It is also the largest Spanish city in the world. Now you know that an Italian always has in his mind's eye that blazing red that comes vomiting out of the top of Mount Vesuvius. He never can forget that red, and the Spaniards can never forget the yellow of their flag. So why wonder at us going ahead for yellow and red? Different nationalities have their different traits and we all cater to our own traits. What is the difference? We are pleased and you are pleased.

After the usual dean I would like to thank, on behalf of the association, Mr. Sullivan for the splendid talk he gave us. I should like to extend our thanks to the Mayor for the excellent man he sent as a substitute.

After the usual dean of the next speaker as a gentleman who

needs no introduction. I am now going to introduce to you Mr. Cameron, who will now give his presidential address.

PRESIDENT ROBERT CAMERON

Robert Cameron, of Ipswich, Mass., then read his address (which appears on page 264).

Mr. Craig introduced Arthur W. Gilbert, Commissioner of Agriculture of Massachusetts.

ALBERT W. GILBERT, COMMISSIONER OF AGRICULTURE, MASS.

Mr. Gilbert replied: I feel a little personal interest in this convention, in you, and in the work that you are doing. I have never had the pleasure and the honor of being a professional gardener, but for several years I did have the interest and the experience, and I might say the enthusiasm of being a plant breeder.

Now in the few minutes that I have allotted to me I want to present to you another subject which is very close to all of us. It applies not only to those of you who are living in the Commonwealth of Massachusetts and nearby states, but possibly to others, and I believe it has a direct bearing upon the work which you are doing. You are aware, perhaps, that the agriculture of the Commonwealth of Massachusetts for the last thirty years has been going downhill. This applies also to other Eastern states. We have forty-two per cent less cultivated land in this state than we had thirty years ago. The greater center of food production has moved westward and has left us in the East in a very serious predicament.

Do you realize, my friends, that we are sending out of New England every year five hundred million dollars for food?

Now this is a very serious situation. We are located where there are very few natural raw products. We are a great industrial centre, as our chairman said.

The result of this is that the Eastern states are finding themselves in the most critical industrial situation that they have ever faced, and therefore, my friends, I am taking the liberty for just a moment to tell you that we are trying in every possible way and at every possible time to preach the raising of greater quantities of food in the East. If we are so far away from the centres of raw materials, we must bring ourselves nearer the centre of food production by raising greater quantities of food here.

Now I state this for two reasons to you. In the first place, you as professional gardeners, raisers of plants, primarily ornamental plants I assume, can be of great assistance to us, because at a time like this, we need all of the skill which you men and women possess. We need in the East the best agriculture that can be found anywhere. We haven't the advantage of the fertile prairies of the West. We have to raise our food on the rocky hillsides of the East, and if there is any place in the world where there is greater need and opportunity for skill it is here, and you are the men and women who represent, to my mind, the acme of this skill, and we want to get from you all of the experience and all of the interest which you possess in helping us to carry out this program.

I bring this to you for another reason. As your President has said, your business in general depends upon industrial prosperity. Perhaps you may feel the pinch of the lack of that prosperity as quickly as anybody else, and therefore it behooves us to help in every possible way to maintain the industrial and commercial prosperity—and I might say, supremacy of the Eastern part of the United States.

I am very glad to see, as your President has also pointed out, that the Massachusetts Agricultural College is going to offer a course in gardening. I have the pleasure of being a trustee of that college, a graduate also of that college, and I assure you that I shall do everything possible to help to stimulate this course, to bring it to a high state of efficiency, and to help you in helping to maintain and carry it out. I am glad that it is being done not by the college alone, but by the college in conjunction with this organization. This is one of the first direct tie-ups that we have between an agricultural college and an organization, and I congratulate you, my friends, that you have been one of the first to bring about a close contact with a college.

If the State Department of Agriculture can be of any assistance to you at any time you know that we will be glad to help.

In introducing the next speaker, Mr. Craig said: It hardly seems necessary to introduce the next speaker to you. You have been told about the wonderful exhibition of wild flowers we had here last May which attracted the attendance of approximately 85,000 people. You may have seen, or at least you have read of the wonderful displays of orchids we had here month by month the year before last and the great orchid displays made here by the next speaker.

Mr. Burrage was awarded the George R. White medal of honor recently for the most eminent services conferred to horticulture by any living American during the past year. He is not only President of the Massachusetts Horticultural Society, but of the American Orchid Society. We will be his guests and be privileged to view his fine collection of orchids next Thursday morning.

ALBERT C. BURRAGE

Mr. Burrage responded as follows: After such words of introduction I hardly know what to say within the three minutes allotted me by your Secretary.

The Corporation Counsel of the City of Boston on behalf of the Mayor, has extended to you the welcome of the City of Boston. Dr. Gilbert, the Commissioner of Agriculture of the Commonwealth of Massachusetts has extended to you the welcome of the state. It is fitting that there should be a welcome extended to you by the Massachusetts Horticultural Society, which lives within the limits of the City of Boston.

So it is my privilege to extend to you this welcome, and for that Society and a thousand members I heartily bid you welcome not only to this building prepared for you by such meetings, not only to all the rooms in the building, but also a welcome to our great library, which has been so commended, and truthfully, by your President. We are proud of our institutions. We are proud of our library, and on behalf of the Society I want to say that while you are here the Secretary of the Society will throughout the day, every day, be glad to show any of you and all of you any part of the library and explain to you the treasures of which we are so proud.

More than that, as my voice is a voice of welcome, I want to give you the welcome of our allied institutions, the Arnold Arboretum and the Harvard Botanical Society, which is quite well known to your President. I want to do more than that, and welcome you to certain things within the Commonwealth of Massachusetts which have not been referred to, but which, to my mind, are most important in the survey of the horticultural work of this country.

(Mr. Burrage's complete address will appear in the next issue of GARDENER'S CHRONICLE.)

Mr. Craig, calling on the next speaker, said: Quite a common phrase is that ladies will always have the last word. We have our program with that object in view today. The lady I am about to introduce to you is one very highly esteemed horticulturally in Massachusetts. She has done much of late years to improve our exhibitions as an exhibitor, as one who supports lectures on exhibitions, and as one who interests children in garden work, and as one who at Hillcrest Gardens helps to train boys in the cultivation of plants, flowers, fruits and vegetables.

I have much pleasure in introducing to you as the last speaker of the afternoon, Miss Marion Roby Case of Weston, Massachusetts, one of the trustees of the Massachusetts Horticultural Society.

MISS MARION ROBY CASE

Miss Marian Roby Case responded: I am very glad Mr. Craig introduced me as he did, because it gives me the opportunity to say to you practical gardeners what I felt very strongly all day Sunday. I have been over my own place with a thorough landscape gardener, because I realized that with the executive work that I had to do as Vice President of the Farm Garden Association, as a member of the Garden Club of America, which extends its greeting to you today, and as a trustee of the Massachusetts Horticultural Society that I was losing something which all of you men are getting, the practical touch of the working of the plants in the land. You are getting a familiarity with those plants which I want but do not always have the time to get, and so it is a great pleasure for me to be here today and tell you that you practical gardeners are getting something which we want.

The plan of the farm is, the boys come to Hillcrest the Monday after Bunker Hill Day, so they practically begin with Bunker Hill Day and end with Labor Day, when they read the papers connected with the work on the farm.

The lecturers for the season on Wednesday afternoon have been Miss Weatherback, who told the boys about the wild flowers of New England; David Fairchild, who was to have come, but on account of illness was unable to. Dr. Ferno took his place, and on Labor Day we received a package of twenty-seven wild flower seeds gathered in Nova Scotia from Dr. Ferno. Warren H. Mack impressed on the boys the beauties of the country in which they were living, showing them large, freehand drawings done by an Italian or Russian of the country in which they live. Mr. Loomis talked to them on writing, and William Gray, who was to have been here this afternoon, spoke to them on the cultivation of out-of-door roses, giving such practical advice as we have been trying to follow, because he showed the beautiful long-stemmed roses which he had been unable to grow out-of-doors.

Professor Thompson, Director of the Agricultural Experiment Station in Lexington, Massachusetts, spoke to them of the chemistry of the air as related to plant life, and the impression that talk made on the boys was evidenced by the observation papers which afterwards came in. Elbert R. Jacks spoke of nut growing in New England. Dr. Warehead, who has come into prominence this Summer in research work which he has been doing among the Indians, spoke to them about the American Indian past and present. Professor McKaye, Director of

the Blue Hill Observatory, spoke to the boys on rain makers.

Miss Elizabeth C. White spoke on the cultivation of bluebells. Robert Murphy, of the Department of Ornithology of the Museum of Natural History, New York, spoke on birds and their ways; and then on Labor Day the boys read their papers.

The program of the boys' work through the year is—on Mondays they read observation papers; on Tuesdays they have a lesson on the growth of plants. Mr. Stanton has the boys in charge. Wednesdays they have a series of lectures. On Thursdays they write reports of the lectures. On Fridays I have them in study hour, and on Saturday, being a half day through July and sometimes in August, they have an automobile ride to some place of interest.

One Monday afternoon I asked the boys to write on what they had learned at Hillcrest Gardens, and I brought one of those papers in to read to you this afternoon, for I felt that this would give practical evidence of what the boys have learned and of our system.

Several papers written by the boys at Hillcrest, each one showing much interest and earnestness in the work they were engaged in, were read by Miss Case.

GENERAL DISCUSSION

Mr. Craig announced: You will find underlying the paragraph of Miss Case's very interesting talk the word "discussion."

We usually have a little discussion after the speakers of the afternoon are finished. We had in New York last year and I would be glad now to hear from any one who has a few remarks to make on Miss Case's talk or anything else that you heard this afternoon. Who will be the first?

Mr. Mackintosh replied: It seems to me that there has been a considerable amount of talk altogether on a false basis. You tried to give the impression that there is no such thing as an American boy who is interested in gardens. Now we have a complete denial of the facts in what the lady has said.

Now you horticulturists of Boston and Massachusetts, don't you think this would be a good opportunity for you to take these boys after the work in this garden, into your large gardens and finish the article?

Miss Case, in reply to Mr. Mackintosh, said: It may be interesting for you to know that Friday morning is the day that I am with the boys in study hour. I had the twenty boys together and I asked those boys how many of them expected to stay on the land when they were men, and twelve of them told me that they hoped to stay on the land.

George F. Stewart remarked it may be interesting to tell the members about the approximate ages of the boys.

Miss Case: The prize for the best paper written for Labor Day was given to an older boy, who wrote two of those papers which I have just read to you. The other prize was given to a boy, about one of the youngest on the place, a boy not more than twelve years old who had written an excellent paper on currants. They had considerable discussion about the papers. The prize for the best observation papers written by the younger boys was also given to one of the youngest of the boys in that second class.

This year we had to divide the boys into Class First and Class Second rather than into older and younger boys, because in the second class of boys who are on the farm for the first time this Summer there were some older boys, a boy of sixteen being among those boys.

COMMITTEE TO EXAMINE PLANTS

Mr. Craig appointed, as a committee to examine the plants, Mr. Rust, Mr. Michie and Mr. Jas. Stuart. The meeting adjourned until eight o'clock in the evening.

TUESDAY EVENING MEETING

At the meeting at Horticultural Hall on Tuesday evening an intelligently delivered lecture, illustrated with beautifully colored slides was given by Edward I. Farrington on the fine trees and shrubs that are to be found in the Arnold Arboretum, which when propagated will be a great benefit to Horticulture. The lecture was a most instructive one to the gardeners present, all of whom enjoyed it immensely.

WEDNESDAY MORNING SESSION

The meeting was called to order at 9:20 A. M., Robert Cameron, President, in the chair.

Martin C. Ebel, the Secretary, then presented his report.

SECRETARY'S REPORT

THE most important accomplishment of the association during the year has been the inauguration of the course for training young men in the gardening profession, in co-operation with the Massachusetts Agricultural College, whereby young men are to

receive their theoretical training at the college and practical experience on private estates. As this subject is to be brought up for general discussion during the convention, I shall not go into detail at length here. This movement is regarded as a great step, not only by the members of the profession of gardening, but by other interests allied with horticulture, as it is the first course of its kind ever introduced in this country.

Two new branches have been established during the year. One at Boston and one known as the Western Pennsylvania Branch, taking in Sewickley and surrounding territory. Others at present are in the course of organization.

Contrary to the general expectation of a year ago there has been no great demand for efficient gardeners to fill worth-while positions this year. It was anticipated that due to the many properties which had been purchased during the past two or three years, development work would be started on many of them. But such has not proved the case. Estate owners are still waiting to learn how much the Government is going to allow them to retain of their income before increasing their expenditures. The Service Bureau will be more fully covered in its special report.

There has been but little progress made in the campaign against the sign boards defacing the landscape along the highways, although the association has secured numerous communications from civic and other organizations and from individuals expressing their interest and their desire to help. When they were advised that interest in the campaign meant work, their interest apparently waned. Several important organizations in their reports, however, agree with the association that the only way to accomplish anything in this direction is through educational lines to arouse public sentiment and that attempts to curb the sign board nuisance through legislation would be futile. In the meanwhile, the sign board industry is increasing by leaps and bounds.

Nothing of importance has developed on the question of Quarantine No. 37 as far as the association is concerned. A meeting was held in Washington, presided over by Secretary Wallace of the Department of Agriculture. As good politicians, the Washington representatives of the Government agreed that they were desirous of doing what they could to meet with the desires of all interests. Secretary Wallace also stated that the horticultural interests would hear from him within six or seven weeks as the matter would have his personal attention. Many more weeks have elapsed, but no word has come from him. A prominent grower who has followed the Quarantine No. 37 situation and been an attendant at all the meetings, recently remarked to me that he realized that the only way anything will ever be accomplished is by educating the public what this quarantine deprives them of, and the injustice of barring many of the plants. The horticultural interests are so divided and many so uncertain of their position that it will be a difficult matter to bring enough of them together to influence the "powers that be."

As a result of the Cleveland convention in 1919 when the school garden committee was appointed at the request of the Board of Education of that city to go over the ground and make recommendations to extend the school garden work, a complete new range of glass at a cost of some \$40,000 was contracted for this year. O. M. Eastman, supervisor of the Cleveland school gardens, gives the association's committee full credit for the extension of school garden work in Cleveland.

The association lost 10 members through death, 21 members through resignations, and has taken on 65 active and associate members and 10 sustaining members. The association is suffering from lack of co-operation on the part of its members at large. We come together at the annual conventions, which year after year prove more successful, become aroused and loaded with "enthusiasm," pledging ourselves on our return home to take off our coats and boost for the N. A. G. Somehow or other the enthusiasm is lost before we reach home. Every member, with a little effort, could interest one or more fellow gardeners to become members and also their employers as sustaining members. We have received letters from estate owners asking whether they were eligible for membership, and wondering why they had not been invited as they had observed the names of good friends on our sustaining membership list. This individual effort on the part of each member would increase the membership roll and the interest in the association in the field of gardening.

M. C. EBEL, Secretary.

MR. MACKINTOSH: I think it is the custom in all organizations, when necessary, to take notice of deceased members. And I think it would be quite in keeping with the feeling of this Association if the Secretary were instructed to write a letter of condolence to the relatives of our deceased members.

MR. CRAIG: At other conventions they have committees appointed to draw up suitable resolutions. That ought to be done here. The committee draws up a set of resolutions to cover all the deceased members. It ought to be done at each convention. I make a motion that the Chair appoint a committee of three to draw up resolutions to forward to the kin of the deceased members.

THE PRESIDENT: Resolved and carried.

THE PRESIDENT: You will now listen to the Secretary's financial reports.

The Secretary then presented his financial reports, one dated October 10, 1921, the other September 1, 1922, which follow.

SECRETARY'S FINANCIAL STATEMENT

NEW YORK, N. Y., Oct. 10, 1921.

RECEIPTS

Cash on hand, August 20, 1919	\$ 161.40	
Cash on hand, Sept. 10, 1920	620.43	
Received for delinquent dues	22.00	
Received for 1920 dues	428.00	
Received for 1921 dues	3,626.00	
Received for life memberships	350.00	
Received for 115 sustaining memberships.....	1,150.00	
Received for Service Bureau Fund	70.00	\$6,427.83

EXPENDITURES

Deposit vouchers to treasurer, Nos. 197-215....	\$5,394.00	
Cash on hand	1,033.83	\$6,427.83

Expenditures of the Secretary's and Service Bureau office from August 24, 1920, to October 1, 1921, have been as follows:

Postage	\$ 149.10
Telephone and telegraph	209.90
Stationery	18.85
Office Incidentals	58.95
Clerk hire	1,145.00
Expenses of Secretary	328.65

Total.....\$1,910.45

M. C. EBEL, Secretary.

BOSTON, Mass., Sept. 12, 1922.

We have completed our audit of the accounts of your secretary up to October 10, 1921, and are pleased to report that we find the statement as rendered above to be correct.

JAMES STUART,
THOMAS W. HEAD,
HENRY E. DOWNER,
Auditing Committee.

SECRETARY'S FINANCIAL STATEMENT

NEW YORK, N. Y., Sept. 1, 1922.

RECEIPTS

Cash on hand, Oct. 10, 1921	\$1,033.83	
Received for delinquent dues	12.00	
Received for 1921 dues	505.00	
Received for 1922 dues	3,365.00	
Received for 1923 dues	10.00	
Received for 104 sustaining memberships.....	1,040.00	\$5,965.83

EXPENDITURES

Deposit vouchers to treasurer, Nos. 216-225....	\$4,932.00	
Cash on hand	1,033.83	\$5,965.83

Expenditures of the Secretary's and Service Bureau office from October 10, 1921, to August 31, 1922, have been as follows:

Postage	\$ 163.20
Telephone and Telegraph	181.30
Stationery	25.22
Office incidentals	51.19
Expenses of Secretary	115.08
Clerk hire	860.00

Total.....\$1,395.99

M. C. EBEL, Secretary.

BOSTON, Mass., Sept. 12, 1922.

We have completed our audit of the accounts of your secretary up to September 1, 1922, and are pleased to report that we find the statement as rendered above to be correct.

JAMES STUART,
THOMAS W. HEAD,
HENRY E. DOWNER,
Auditing Committee.

THE PRESIDENT: You have heard the reading of the Secretary's financial reports. Are there any remarks? If not, those in favor of accepting the reports as read will signify by saying, "aye"; contrary, "no." The reports are accepted.

The Treasurer's reports were then read by Mr. Downer. Reports dated October 10, 1921, and September 1, 1922, followed and were accepted.

TREASURER'S REPORT

ENGLEWOOD, N. J., Oct. 10, 1921.

RECEIPTS

Balance in Bank, Sept. 10, 1920 (Gen'l Fund) ..	\$1,664.75	
Balance in Bank, Sept. 10, 1920 (Reserve Fund) ..	367.06	
Deposit vouchers, Gen'l Fund, No. 197 to 215 ..	5,397.00	
Interest, General Fund ..	45.04	
Interest, Reserve Fund ..	22.44	\$7,496.29

DISBURSEMENTS

Vouchers Nos. 300 to 352; Nos. 355, 356, 357, as follows:		
Chronicle Press, Inc., subscriptions ..	\$1,521.00	
Chronicle Press, Inc., rental office space (Sept., 1920-Oct., 1921) ..	325.00	
Chronicle Press, Inc., printing proceedings St. Louis convention ..	102.00	
Advertising Account, Service Bureau ..	250.76	
Robert S. Dennison & Co., printing and stationery ..	197.95	
Madison Eagle, printing ..	59.10	
M. A. Brennan, reporting St. Louis convention ..	75.00	
Barnett & Draddy, multigraphing ..	2.25	
Metropolitan Letter Co., multigraphing ..	4.05	
Dieges & Clust, medals ..	63.50	
Internat'l Exposition Co., rental space at Flower Show ..	212.00	
Merchants & Mfg. Exchange, rental furniture for Flower Show ..	49.00	
Maurice Bateman, gold lettering ..	3.00	
Appropriation voted to Secretary ..	1,000.00	
Expenses of Secretary's office and Service Bureau ..	1,910.45	
Member's check returned "no good" ..	5.00	
Bank's charge ..	10.00	

Total Disbursements ..	\$5,790.06	
Balance in Bank, Oct. 8, 1921 (Gen'l Fund) ..	\$1,316.73	
Balance in Bank, Oct. 8, 1921 (Reserve Fund) ..	389.50	\$1,706.23
		\$7,496.29

INVESTMENTS

Third Liberty Loan Bond ..	\$1,000.00
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PETER DUFF, *Treasurer*.

BOSTON, Mass., Sept. 12, 1922.

We have completed our audit of the accounts of your treasurer up to October 10, 1921, and are pleased to report that we find the statement as rendered above to be correct.

JAMES STUART,
THOMAS W. HEAD,
HENRY E. DOWNER,
Auditing Committee.

TREASURER'S REPORT

BROOKLYN, N. Y., September 1, 1922.

RECEIPTS

Balance in Bank, Oct. 8, 1921 (Gen'l Fund) ..	\$1,316.73	
Balance in Bank, Oct. 8, 1921 (Reserve Fund) ..	389.50	
Deposit vouchers, Gen'l Fund, Nos. 216 to 225 ..	4,932.00	
Interest, General Fund ..	46.69	
Interest, Reserve Fund ..	7.78	
Interest, Liberty Bond ..	63.75	\$6,756.45

DISBURSEMENTS

Vouchers Nos. 353, 354; Nos. 358 to 405, as follows:		
Chronicle Press, Inc., subscriptions ..	\$1,464.00	
Chronicle Press, Inc., rental office space ..	200.00	
Chronicle Press, Inc., partial printing N. Y. convention ..	75.00	
Advertising Account, Service Bureau ..	200.00	
Robert S. Dennison & Co., printing and stationery ..	90.05	
Dieges & Clust, medals ..	70.50	
Internat'l Exposition Co., rental space at Flower Show ..	208.00	
Master Reporting Co., reporting N. Y. convention ..	78.40	
Royal Typewriter Co., typewriter ..	115.00	
A. Warendorff, publicity flowers ..	10.50	
McArdle Seed Store, funeral wreath for Robt. Williamson ..	15.00	
Long Beach Willow Furniture Co., rental furniture Flower Show ..	30.50	
I. Bergman, repairing furniture ..	8.00	
Mullens & Tutrone, printing ..	39.25	
Multi-Service Bureau, multigraphing ..	7.50	
Kee Lox Manufacturing Co., typewriter supplies ..	11.00	
Manhattan Exp. Const. Co., constructing booth at Flower Show ..	12.40	
Expenses of Secretary's office and Service Bureau ..	1,395.90	
L. C. Smith & Bros., repairing typewriter ..	5.00	
Member's check returned "no good" ..	5.00	
Total Disbursements ..	\$4,041.09	

Balance in Bank, Sept. 1, 1922 (Gen'l Fund) ..	\$2,318.08	
Balance in Bank, Sept. 1, 1922 (Reserve Fund) ..	397.28	\$2,715.36
		\$6,756.45

INVESTMENTS

Third Liberty Loan Bond ..	\$1,000.00
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MONTAGUE FREE, *Treasurer*.

BOSTON, Mass., Sept. 12, 1922.

We have completed our audit of the accounts of your treasurer up to September 1, 1922, and are pleased to report that we find the statement as rendered above to be correct.

JAMES STUART,
THOMAS W. HEAD,
HENRY E. DOWNER,
Auditing Committee.

Mr. Downer then presented the report of the Service Bureau, which follows:

THE WORK OF THE SERVICE BUREAU

THE Service Bureau has not been as active this year as in previous years due, of course, to the fact that there has been a small demand for gardeners of the efficient type. There are always more or less calls for what might be termed the mediocre gardener. When such inquiries come, the Service Bureau does not attempt to fill them, but attempts to educate the estate owners by apprising them what really constitutes a true gardener. We have at times been ridiculed for endeavoring to present gardeners as of a professional rank. On the other hand, on a number of occasions, we were successful in interesting the estate owners to try a more efficient gardener than they had been accustomed to. The reports which come to us have been that the experiment proved most satisfactory.

Early in the year there were quite a number of inquiries for highly efficient men to superintend the development of new places, the positions to be filled this Spring, but in each case when Spring came, the owners had reached the decision not to go ahead until general conditions are improved.

There is no doubt that the Service Bureau is the most difficult of all the departments of the association to operate. Those who have anything at all to do with the operation of the Service Bureau show no favoritism but select the men whom they believe are best fitted for the positions, and that they are not far wrong in their judgment is substantiated by the splendid record that the Service Bureau has established among many estate owners.

The association is eager to conduct the Service Bureau on the highest plane possible. If it can be improved, and as stated at previous conventions, if there is any member who has constructive suggestions to offer, the association will appreciate receiving them.

M. C. EBEL.

THE PRESIDENT: You have heard the reading of the Service Bureau report. Are there any remarks? This is a good time to discuss things if you have anything to say.

MR. MACKINTOSH: It seems funny that no one wants to say anything, that no one has any kick. I rise to move the adoption of the report as sort of an introduction.

I did happen to be in the Secretary's office now and again up until five months ago, and I can assure you gentlemen who live a distance away that it is no joke what the Secretary tells you about people coming in. In fact, when I am in the neighborhood I run in to say, "How are you?" and when he is busy I go right out.

As to the jobs, that is a thing you can't help. You know every man thinks himself about the best there is, better than McPhearson or John Thompson, and he don't see why he shouldn't get the job, and so on. But I think that as far as the Secretary's report goes, all the men that have been placed through the Bureau have given satisfaction. I don't think that the Association could expect anything more.

THE SECRETARY: Mr. Chairman, I would like to say that this would be a good time to make suggestions of how the Service Bureau ought to be conducted. The criticism pretty generally is that it is not conducted right. When they come to me and say that it isn't conducted right, I ask them how they would do it, and they say, "I don't know, but you are not doing it right. You are not satisfying the gardeners."

Now, I am conducting the Service Bureau to the best of my ability, as far as I know. Every convention we ask for suggestions and ideas, but we don't get them.

The report was accepted as read.

As there were no resolutions, the next business in order was the nomination of officers for the year 1923.

NOMINATION OF OFFICERS

Mr. Michie nominated John Barnet for President.

The nomination was seconded and motion made nominations close. Carried.

Mr. Head nominated John H. Francis, of Cleveland, for Vice-President. The nomination was seconded.

Mr. Stewart nominated William Gray, of Newport, R. I. The nomination was seconded.

Moved and carried, nominations be closed.

Mr. Head nominated M. C. Ebel as Secretary.

The nomination was seconded and moved that it be closed. Carried.

Mr. Stewart nominated Montague Free for Treasurer.

The nomination was seconded; moved that it be closed. Carried.

THE PRESIDENT: There are now five Trustees to be nominated for the year 1923.

Mr. Ebel announced that, according to the charter of the Association, it is compelled to nominate three Trustees for the State of New Jersey, and nominated Mr. Head, Mr. Mackintosh and Arthur Smith from New Jersey as the New Jersey members and Mr. Cameron as one of the two Trustees-at-Large.

Mr. Stuart nominated Andrew L. Dorward, of Newport.

Moved the nominations be closed. Carried.

The President announced the next thing on the program was the consideration of the meeting place for next year.

Mr. Donald proposed Pittsburgh.

Mr. Barnet presented a personal invitation from the branch in Western Pennsylvania.

Mr. Stuart moved the nominations be closed.

THE PRESIDENT: It has been moved and seconded that the nominations close. All those in favor will please signify by saying, "aye"; contrary, "no." It is a vote.

Under the head of New Business, the President inquired: Has any one anything to bring up before the meeting at this time?

MR. DOWNER: I make a motion that a recess be taken. The motion was seconded. Carried.

RECESS

The President called the meeting to order to consider New Business.

NEW BUSINESS

MR. DOWNER: The Board of Directors recommends to the convention here now assembled that an honorarium of \$1,000 be paid Mr. Ebel.

MR. CRAIG: Mr. President, I don't know whether the members all heard that or not. It was that the Board of Directors recommended that the convention award an honorarium of \$1,000 to Mr. Ebel for his services.

The recommendation was seconded by Mr. Head. Carried.

MR. DOWNER: The Board of Directors also recommends that from now on the Secretary shall receive a salary of \$3,000 a year, to be paid in monthly instalments; the Service Bureau as now conducted, as a separate unit, to be discontinued. The Secretary's salary shall cover office rental, clerk hire, telephone and telegrams, postage, traveling expenses and all other incidental expenses connected with the office and work of the Service Bureau.

MR. HEAD: Mr. Chairman, for the benefit of the members assembled—some perhaps did not hear well enough and perhaps do not realize what we are trying to do—the point of issue is to get the Association on a financial basis. The Association has been in existence a good many years, and up to date there has been no financial standing; that is to say, we haven't been put on a good financial basis.

Now, the main thing is to get the Association on a good financial basis, and the first thing to do is to have your Secretary paid a sufficient salary so that he can conduct the business in a businesslike manner.

Then, the Board of Directors has also thought over the Service Bureau, and from what we could gather the Service Bureau has been a bill of expense to the Association, without getting the results that we thought we would. So, therefore, we are going to cut out the Service Bureau as it is now being run, and will leave the Service Bureau end of it with the Secretary, to carry on as he sees fit. That is to say, should a position come in, should a lady or a gentleman ask for a gardener from the Service Bureau, it would be the Secretary's business to assist that party in getting a gardener from the National Association, but not to run the Service Bureau the way we have been running it, at such a big expense without getting very much for it.

The main thing is to get the whole thing down on a good financial basis, so that we know where we are at. It is like any other business. There is the reason for the recommendation, and I hope, fellow members, that you will see it in the same light that we have seen it. We sat down and talked it over. It isn't only today that we have talked it over, but we have been considering it for some time; but we got together today and formulated this plan, and we think that \$3,000 ought to be enough to carry the thing along.

MR. MACKINTOSH: The only thing about that is that the Service Bureau has been a bill of expense to the Association. I don't see how we can get away with the idea that the Service Bureau is to be eliminated, because it will not be, and the same services that were given before will be given from now on, and Mr. Ebel, as Secre-

tary, will use his good offices as Secretary of the Association the way he used to use them as Secretary of the Service Bureau. It is a case of amalgamation. We are going into a trust. Nobody is to go away with the idea that there is to be a discontinuation of the Service Bureau, because if any of you want any advice or want any men, the service will be just exactly the same as heretofore, only not as a separate thing.

The recommendation was favorably adopted.

QUARANTINE 37

MR. CRAIG: Mr. President, you, in your Presidential address, like a wise man, changed your mind from last year. Last year you got on the floor and you applauded Quarantine 37. In your Presidential address you thought it was a great iniquity. A wise man changes his views, and this shows that you are one.

I think this Association ought to go on record again as opposed to Quarantine 37 as at present on the statute book. We know that a good many commercial interests applaud it for certain selfish reasons. The body of men which formed the Federal Horticultural Board, composed of etymologists, bacteriologists, and others, were put there to bar out injurious insect pests and diseases. They formed themselves into a Tariff Board to keep out all products from abroad that we need here in our gardens. Now the commercial interests, in a large measure, applaud that because for some of the material they have on hand they can get handsome prices from the ultimate consumer, and therefore, as your President said, the prices have been immensely increased to the buyer, the amateur, the gardener, and we ought to go on record as demanding a moderate modification of Quarantine 37 as at present on the statute book.

It is unfair to the great horticultural interests of America that they should suffer because five men were put there to keep out insect pests and they formed themselves into a tariff commission, and because the bulk of the nurserymen, and some florists, who are just as bad as the nurserymen, think that they ought to bar all foreign products and by doing so get a higher price for commodities here at home.

It is not fair at all, and we ought to go on record as a National Association as demanding a modification of Quarantine 37.

A lively and most interesting discussion arose, following Mr. Craig's remarks, in which a number of members participated, all against Quarantine No. 37, and many points not heretofore brought to light were presented, showing the unfairness and unreasonableness of this Act. Space will not permit publishing the many experiences related. They will, however, be handled as a separate subject in the next issue of THE GARDENERS' CHRONICLE. The principal points of the discussion were that the Quarantine was a tariff protective rather than a preventative against insect pests and diseases in this country; that many nurserymen were taking advantage of the situation to place prohibitive prices on their stock, and that, contrary to the claims of the Federal Board that many of the barred plants have already been propagated in this country, the reverse is the case.

Mr. Craig, who took an active part in the discussion and in his usual forceful manner, whenever the issue is before him, condemned many of the practices now being resorted to under cover of Quarantine No. 37, continued that the Association should at least ask the Federal Horticultural Board to import, under careful scrutiny, new, rare and desirable plants, without bonds. "You and I," he said, "have boys who perhaps want to follow this profession, but we want them to obtain new, rare and interesting material. You think we can propagate everything. We cannot." Mr. Craig moved that the National Association of Gardeners go on record as demanding a fair adjustment of Quarantine No. 37 to permit amateurs to introduce new, rare and desirable plants without having to give bonds for same, after careful inspection.

The motion was seconded and carried.

RESOLUTION OF WESTERN PA. BRANCH

Mr. Barnet submitted the following resolution which was approved by the recently organized Western Pennsylvania Branch of the National Association of Gardeners:

"The members of this branch are pleased to note the tendency for closer co-operation between our Association and the various Garden Clubs throughout the country.

"We feel that this cordial relationship should be still further encouraged and, with this object in view, bring before this assembly for its consideration and approval the following suggestion:

"That the Association engage a competent lecturer, who shall appear before these Garden Clubs, presenting our aims and objects, soliciting still closer co-operation in matters that affect the mutual welfare of the members of the various bodies concerned.

"We believe that a campaign along these lines, or similar lines, would very materially enhance the prestige of our Association."

(Signed) GEORGE H. WELSH, WESTERN PENNSYLVANIA BRANCH, NATIONAL ASSOCIATION OF GARDENERS, MARCUS CURRAN, JOHN CARR, and HENRY GOLDSBERRY.

While it was generally agreed that the resolution submitted by the Western Pennsylvania Branch contained some excellent ideas and that it was most desirable to secure as much co-operation as possible between the Garden Clubs and the Association, nevertheless, it was questioned by some whether the Garden Clubs, as a whole, would really accept the proffer of having the Association provide a free lecturer to speak on its aims and purposes. The Garden Clubs, it was said, already had a long list of lecturers from which they chose and paid well for. It was also suggested that the National Association of Gardeners is hardly in a position to stand the expense of what is proposed in the resolution. The experience is referred to when, in the earlier days of the Association, printed lectures were distributed among the Garden Clubs, and they were welcome, but after a while interest in them ceased. One of the arguments were that something for nothing is never appreciated and that the Garden Clubs are always willing to pay for lecturers. It was finally moved to accept the resolution and lay it on the table. Carried.

President Cameron appointed as a committee to draw up a resolution on the deceased members Mr. Craig, Mr. Barnet and Mr. Downer.

On the committee to draw up final resolutions, Mr. Michie, Mr. Mackintosh and Mr. Stewart were appointed.

The meeting then adjourned to meet again in the afternoon.

ADJOURNMENT

WEDNESDAY AFTERNOON SESSION

The meeting was called to order at 2:25 P. M., Robert Cameron, President, presiding.

THE PRESIDENT: Will the meeting please come to order? The first business for this afternoon is the action on amendments to the By-Laws, which Mr. Downer will read for you.

Mr. Downer then read the amendments to the By-Laws which were suggested relative to the Reserve Fund.

We, the undersigned Branches of the National Association of Gardeners, being of the opinion that the increase in the life membership dues will act as a deterrent to the increase of the Reserve Fund and also being of the opinion that this Fund should be materially increased each year, do respectfully petition that the following amendments be made to Article VII of our By-Laws.

ARTICLE VII

Change Section I to read:

Section I. All moneys collected from life-membership dues shall be placed in the *Reserve Fund*.

Add Sections II, III, IV and V to read:

Section II. Ten per cent of all moneys collected from active, associate, and sustaining membership dues shall be placed in the *Reserve Fund*.

Section III. All investments of the Association shall be considered a part of the *Reserve Fund*.

Section IV. Yearly interest accruing on the *Reserve Fund* shall be applicable to the fund, or the whole or any part of said yearly interest may be extended for specified purposes on the advice of the Trustees subject to the approval of the Association at its Annual Convention.

Section V. The principal of the *Reserve Fund* shall be held intact.

Approved by the Newport Branch, March 22, 1922.

Approved by the Boston Branch, June 30, 1922.

Approved by the St. Louis Branch, September 1, 1922.

NEAL MCCALLUM made a motion that the amendments just read by Mr. Downer be added to the By-Laws. Seconded and carried.

Mr. Downer then read the amendments to the By-Laws for the Local Branches.

ARTICLE VIII

LOCAL BRANCHES

RULES AND REGULATIONS

Section 1. The object of the local branch is to establish a closer contact between the individual member and the main organization, and to spread a better knowledge of the aims and objects of the National Association of Gardeners among non-member gardeners and others interested in Horticulture.

Section 2. Six or more members of the National Association of Gardeners may organize and form a local branch designating the branch after the district in which they are located.

Section 3. On organization each branch shall appoint a chairman and a secretary, and notify the secretary of the National Association of Gardeners of their action giving the names of the officers and the number of members composing the branch.

Section 4. Meetings shall be held as the members may de-

termine and may be of an informal character. Non-members present may enter into discussions but cannot vote on any question.

Section 5. Each branch shall be entitled to send a delegate to the Annual Conventions of the Association. Any branch unable to send a delegate owing to distance or other causes may be represented by a member of another branch.

Section 6. A delegate on arising to address the Convention shall preface his remarks by stating the name of, and the number of members in the branch he represents.

Section 7. Applications for membership in the National Association of Gardeners coming from a district in which a local branch is organized must have the endorsement of that branch.

Section 8. It shall be the duty of committees appointed on important matters at the convention to ascertain, through correspondence with the secretaries of the local branches, the sentiment of the members on the matter in question and base their reports on the consensus of opinion so obtained.

Approved by the Newport Branch, March 22, 1922.

Approved by the Boston Branch, June 30, 1922.

Approved by the St. Louis Branch, September 1, 1922.

W. N. CRAIG: There is a diversity of opinion regarding one or two clauses here. Some members have the idea that a delegate going from a branch to a convention represents the full power at that convention in voting, and this is something that we cannot possibly tolerate.

A member going, say, from Newport to the convention and speaking for forty or fifty members, should not be delegated to cast forty or fifty votes. We cannot tolerate that. We ought to give them some voting power. What it is, is for us to determine, but it cannot be the number of the members in that branch.

MR. ROGERS: I don't see why a member should be misled to think that they have sixty or seventy votes from any local branch. There is nothing in these By-Laws to determine that, as Mr. Craig says, but my opinion of it was when it came up in the local branch in Boston, that a member if delegated when he rose to speak in a convention, would preface his remarks by stating how many he represented.

For instance, if a question came up in a local branch which was to be debated at the convention, when the delegate from that local branch got up to speak he would tell whether that was a unanimous vote of the local branch or if it was divided, and if so, how many were for it and how many were against it.

My opinion was that it would have a tendency to influence the members in the convention as to what the majority thought of that issue, and I think it is a good thing in that sense. I don't mean that he should get away with sixty or seventy votes, I think that is an outrage.

MR. STEWART: I think it would be advisable on our part to decide right away how much power we really should give, the percentage according to the numbers in a local branch. I feel that local branches ought to have a little more power than they have, and by giving them a percentage of the number, as has been argued by several of our members privately, it would increase the interest and get some outsiders to get hold of the affairs of the Association.

MR. DOWNER: Mr. President, this point occurred to me: Suppose you had a local branch of forty members and you decided, we will say from a talking standpoint, that you would give one delegate to ten members, therefore, that branch would be entitled to send four delegates.

Suppose the local branch discusses some subject and the opinion is not unanimous. You may have thirty for it and ten against it in the branch meeting. What would you do about representing the majority? You couldn't send four delegates here if there were ten against it.

MR. BARNET: If four delegates choose to come here of their own will they could still cast four votes.

MEMBER: Is there anything in those regulations regarding voting? We are not discussing that. The article as read has nothing to say about voting.

THE PRESIDENT: This has come from the outside and we want to get it straightened out.

MR. STUART: I have thought this over quite a little. What I came here to listen to today was what the branches already formed want. What vote do they want? I imagine what they get today is pretty nearly nothing.

What I would like to see is just a little power for the branches, between the branches and the Board of Directors, say the branches would recommend something to the Board of Directors to work on, and the Board of Directors would take it up and recommend it to the annual convention. Give them a little authority to do something, not the power to vote. I think that voting power isn't of much count when it comes to the final analysis. Give them some interest in the Association. I think if the Directors would write to those branches and ask for suggestions regarding the Association from time to time, ask those branches what they have been doing in the last quarter, what that particular branch has been

doing and if they have any suggestions to offer us as the Directors of this Association to go onward,—that, in my opinion, is the whole thing, not that voting power, that is too much like politics.

MR. DONALD: What was the origin of this thing? What started up this thing? Did the branches ask to get a vote in the convention whether they were represented or not?

THE PRESIDENT: There are only going to be National Association members belonging to the branches, consequently they are a voting power if they come here.

MR. DONALD: What do you mean by saying that you give them so much power?

THE PRESIDENT: That is, supposing a club in Chicago with quite a number of members had only one man coming from that local branch to the convention. Some have read this thing as meaning that all of the members belonging to that branch could vote. If they had fifty members they could cast fifty votes, consequently it would swamp our meetings. We don't believe in that and we are talking this over to see if we can get a better way out of it.

MR. STUART: The trouble today is that the branches don't have enough authority in the conventions. They ought to have some say in the working of this. If they had some authority, some connection with the Board of Directors in the working of this Association you would have more interest in the whole thing. I was told that the Nassau Branch has almost out-functioned just because there is no connection between them and the working of this Association. They are absolutely almost independent. If we could establish some connection either between the Board of Directors or the Association and the branches, it would give them something to go by. Let them recommend something to us. Listen to their voices by all means in whatever they have to suggest or say, otherwise they cannot be fully represented at these conventions.

MR. STEWART: I would like to ask the last speaker, for instance, if any issue came up in the local branches and it was accepted by three or four of these local branches, and if the Directors see fit to throw that down, would it be their place to do so?

THE PRESIDENT: It would come up at the annual convention where it would be settled. Is there any further discussion?

MR. FORBES moved that the amendment be adopted. Seconded and carried.

THE PRESIDENT: The next thing to come up is a discussion on the Two-Year Course for Gardeners at the Massachusetts Agricultural College, opening September 27, 1922. I wonder if Mr. Downer wouldn't read about this course at Amherst. Probably then you would have a chance to discuss it better.

MR. DOWNER read an outline of the course to be given at Amherst, September 27, 1922.

THE PRESIDENT: Are there any remarks?

MR. McCALLUM: I think it is the opinion in Europe that a man should learn to work with his hands first. The boys who go from high school to college are afraid to get dirt under their finger nails, and they don't take kindly to work. I think it is better that men should become journeymen gardeners before they take this course.

THE PRESIDENT: You will notice that they have to have two years' experience before they begin this course.

MR. CARTER: I see that at the end of this training, it says they will be examined by a Special Board. I am looking for information. I would like to know what kind of a special board would be selected.

I am reminded of a letter which I read in the CHRONICLE some time ago by one of our worthy members who said that he would venture to think that if this examination for gardeners was established and adapted on the same lines as in Europe, that our college professors who were teaching horticulture here in this country would fail to pass an examination similar to that conducted in Great Britain, for instance. If the ones teaching horticulture in this country wouldn't be capable of passing the examination, it is a question in my mind as to who would be capable of examining the students.

THE PRESIDENT: I don't quite agree with you. I think that there are men as capable in this country as there are in Europe today.

MR. CARTER: I was looking for information as to who the Special Board would be and who would have the duty of appointing this Special Board.

MR. DOWNER: I think it is clear in the pamphlet. It states that at the end of their second year of theoretical training, if successful, they will receive a certificate from the college, based, of course, on the theoretical training. From this point they enter upon an apprenticeship of two years, supervised by the National Association of Gardeners. That is the practical part.

At the end of this time they will be examined by a Special Board, and, if successful, will receive the diploma of the National Association of Gardeners. That special board might be made up of members of the Gardeners' Association and the authorities at Amherst. It doesn't say anything about a set examination.

THE PRESIDENT: I should like to tell you the story of a boy I have working for me now and whom I wish to take this course. He came from high school and he had been there two years. I found out that he knew a good deal about vegetables. I said, "You are quite interested in this work, aren't you?" He said, "I have taken all my studies in school on gardening." I said, "You are eligible for this course at Amherst." So I asked him if he wouldn't consult his father and the superintendent of schools about going there. He came back and said that they both thought well of it.

One morning I said to him, "You must remember that it will cost you in Amherst from eight to twelve dollars a week." He said, "I am prepared. I have a thousand dollars, in fact, I have two thousand dollars." That boy has just passed his seventeenth birthday. I said, "How did you make this money?" He said, "I had a garden and grew vegetables. One year I sold \$250 worth of vegetables. My father said that if I would save live hundred dollars he would double it. Since that time I have saved another thousand."

I paid that boy sixteen dollars a week, and that is what they expect to get, those going to college—or perhaps twelve dollars a week.

MR. CRAIG: I want to tell you my experience with college boys. I think they are better in every way than the boys without training, far better. They are quicker to learn, their brains are clearer, they are more studious and they are going to make better men.

The same applies in our profession. The men who are going to follow us are going to be a very different type of men. And if we are to build our Association up and get the type of men that we need, we must help to boost this college course. It is gotten up with the sincere hope to elevate our profession and give us a type of men we need to build up a better type of horticulture in America. I am hoping to send my boy there and we want you to send boys there to help us.

I think there is a small body of three men qualified to pass on those boys in our profession, don't you? I am not going to be in it much longer, but I hope to see one or two of my boys follow in the line for a time, at least. I want them to have the credit of an education which was denied to us when we were small. Don't belittle our profession, but help us in this course, help build it up and help build up your Association at the same time.

MR. ROGERS: I was interested in the lectures at the Garden and Floral Club this last Spring when this issue came up at the preceding meeting, and in our minutes of that meeting Mr. Craig claimed that bigger and better brained men would come out of that college course.

At that same lecture we had a Professor from Amherst, Professor Thompson, and I think some of you present remember how he complimented the men who served an apprenticeship across the water, and he was a college professor himself.

The men who served an apprenticeship across the water in the old way, it seems to me, are good growers and good men, but they haven't got the flow of language that a college graduate has.

If you think this is going to be a benefit to the boys, try it. I sometimes think it is going to be a success.

MR. BRYANT: I would like to say a few words. I think that this is worth trying out if it is given the way it is stated in this program, giving a blend of the theoretical with the practical, and I think that probably it would be a mighty good thing.

I took a short course at Amherst just for the pleasure of it and I had a very enjoyable and educational time there. I think that if everybody could do the same thing, it is surprising what enjoyment could be gotten out of it. I think that we all feel that the more education we get the better off we are and the better off the world is for it, but I do think, as Brother Mackintosh says, it depends upon the boy or the man.

MR. STUART: The members seem to think that this is a new move. It might be new to the National Association of Gardeners, but I remember about twenty-two years ago when I started looking for a head job in Boston, they advised me there were only head jobs for those who took a college course. That was twenty-two years ago. What do you find the condition today?

I have been here for a week and around to the best places in Boston, some beautiful places that have fine gardeners and a haven't seen a college graduate on one. Is that an indication that the college man will be successful in the future?

THE PRESIDENT: I should like to say to Mr. Stuart that this is the first time that a course like this has been given in the United States, consequently, he couldn't see very many who took a course like this to get gardeners in the profession. So that in the future, if he comes back another twenty years from now, I think he will probably see some of these men around.

MR. STUART: Wasn't that same thing available twenty years ago?

THE PRESIDENT: No, sir. Nothing like it has ever been given in this country, and we ought to feel proud that our Association is the first to take this thing up and is starting a course like this. I would like to have it adopted.

MR. MACKINTOSH: By all means. I thought that was

going to pass that stage long ago. Why shouldn't it? It is a step in the right direction. There are some men who are spoiled by education, but not very many.

I have much pleasure in moving the adoption of all that has been done by the college people and by the people representing you here as your Directors, and so on.

THE PRESIDENT: It has been moved and seconded that we have a rising vote in adopting the rules and regulations of this course at Amherst College for Gardeners. (The delegates all arose.)

I am glad it has been passed. It is one of the finest things we have done in this organization, and I am glad that I am President here during this term.

THE PRESIDENT: The next matter of business is the Election of officers. I will appoint Mr. Downer, Mr. Bryant, Mr. Finlayson, Mr. Stewart and Mr. Donald as Tellers.

THE SECRETARY: One ballot can be cast for the President, Secretary, Treasurer, and for Mr. Head, Mr. Mackintosh and Mr. Smith. You only have to ballot on the vice-president and two trustees at large. Only active members are entitled to vote. Associate members have no vote.

The candidates to vote for: The candidates for trustees at large are Mr. Cameron, Mr. Fisher of Ohio, Mr. Johnson of Pittsfield and Mr. Dorward of Newport.

MR. CRAIG: Moved the Secretary cast one ballot for President. Seconded.

THE PRESIDENT: The Secretary has cast one ballot for President. Mr. John Barnet is elected President of this Association for the next year.

THE SECRETARY: The candidates for Vice-President are Mr. Gray of Newport and Mr. Francis of Cleveland.

MR. CRAIG: While the tellers are counting the ballots I move that the Secretary cast one ballot for the Treasurer. Seconded.

THE PRESIDENT: The Secretary cast one ballot for Treasurer. Mr. Montague Free is elected Treasurer.

MR. MACKINTOSH: I move that Mr. Craig cast one ballot for Secretary. Seconded.

THE PRESIDENT: Mr. Craig has cast one ballot for Secretary. Mr. Ebel is elected our Secretary.

MR. MICHIE moved that the Secretary cast a ballot for the three trustees from New Jersey, Mr. Mackintosh, Mr. Head and Mr. Smith. Seconded.

THE PRESIDENT: The Secretary has cast a ballot for the three trustees from New Jersey, and these men are elected.

THE SECRETARY: We have to vote for two trustees. The following nominations have been made: Mr. Cameron, Mr. Fisher of Ohio, Mr. Johnson of Pittsfield and Mr. Dorwood of Newport. We have to vote for two.

MR. DOWNER: Mr. President and Gentlemen, the result of the balloting for Vice-President is, Mr. Francis 27 votes and Mr. Gray 22 votes.

THE PRESIDENT: John H. Francis is elected.

MR. DOWNER: Mr. President and Gentlemen, the result of the balloting for two trustees is, Mr. Cameron 43 votes, Mr. Dorwood 25 votes, Mr. Johnson 19 votes and Mr. Fisher 18 votes.

THE PRESIDENT: Mr. Cameron and Mr. Dorwood are elected as trustees for 1923.

THE PRESIDENT: Will the Committee on Final Resolutions report now, please?

Mr. Stuart then presented the final resolutions as follows:

FINAL RESOLUTIONS

The members of the National Association of Gardeners assembled desire to extend their thanks and appreciation to all those who have contributed to the success and enjoyment of our annual convention here in Boston.

We specially desire to tender our thanks to the Massachusetts Horticultural Society for the privilege of the use of Horticultural Hall for our business sessions. Our thanks are also due to the various committees, under the able chairmanship of W. N. Craig, who have done so much to make our visit to Boston an enjoyable success, and particularly to the committee of ladies who have specially provided entertainment for the visiting ladies, and to the convention at large. And, further, to the retail florists of Boston and all others who have provided decorations for our convention.

Finally, we request that W. N. Craig send a personal letter of thanks to all who have invited us to visit their places.

COMMITTEE ON FINAL RESOLUTIONS.

Alex. Michie,
D. L. Mackintosh,
James Stuart.

THE PRESIDENT: You have heard the reading of the final resolutions. Are there any remarks?

MR. ROGERS moved they be accepted. Seconded and carried.

THE PRESIDENT: Will the Committee on Deceased Members report now?

The resolution on deceased members was then presented as follows:

RESOLUTION ON DECEASED MEMBERS

The members of the National Association of Gardeners, assembled in their annual convention at Horticultural Hall, Boston, September 13, 1922, wish to express their sincere sorrow at the loss their ranks have sustained in the deaths of the fellow members, Mrs. Manuel Rionda, George P. Wetmore, Robert Bottomley, Thomas Hatton, Robert Williamson, William G. Hasker, Frank P. Sladen, and A. E. Muchldorfer, and wish to express their sincere sympathy to the families and those near and dear in the loss they have sustained, a loss which we equally share.

Resolved, That a copy of these resolutions be forwarded to the families of the deceased members and spread on the records of the Association.

COMMITTEE ON RESOLUTIONS,

William N. Craig,
John Barnet,
Henry E. Downer.

MR. BARNET moved its adoption as read. Seconded.

THE PRESIDENT: It has been moved and seconded that the resolution be adopted as read. Carried.

Is there anything else that ought to be taken up?

MR. BARNET: Mr. Chairman and Gentlemen, I have great respect for Mr. Craig. He has announced the fact that he is about to depart from active membership, and while he has taken up business for himself we still have his advice and counsel as an associate, and I move here today that we give him a hearty rising vote of thanks; that is the least that we can do at this time.

THE PRESIDENT: It has been moved and seconded that we give a hearty rising vote of thanks to Mr. Craig.

The members all arose and applauded, and sang "For he's a jolly good fellow."

MR. CRAIG: Thank you very much, gentlemen.

THE PRESIDENT: Before we depart, I thank you for your attendance here. I am very grateful for the way you have attended to business during these last two days. We have done a good deal of business and we passed it through our hands very quickly.

I sincerely thank you for your attendance and for sitting so long today through these long sessions we have had.

A motion to adjourn will now be in order if there is nothing else to take up at this time.

MR. MACKINTOSH moved that the meeting adjourn. Seconded.

THE PRESIDENT: Let us adjourn.

ADJOURNMENT.

THE ANNUAL BANQUET

After a busy day at the business meetings on Wednesday, the members, with their wives, daughters and sweethearts, assembled in the banquet hall of the Hotel Brunswick promptly at seven o'clock, where they enjoyed not only a splendid menu provided by the Banquet Committee but also the addresses that followed, which supplied much food for thought from those of the speakers, who were more seriously minded and who dwelt on horticulture and its benefits to mankind and the opportunities that are presenting themselves to the younger men to take up this noble profession, while some of the others proved themselves most capable wits, keeping the gathering in an uproar, thus providing considerable mirth. The gathering, of about 135 members and ladies, was one of the most representative that has ever come together at a gardeners' banquet. It will live long in the memories of all those present.

Judge Charles W. Hoitt, who presided as toastmaster, certainly proved himself a past master, ever ready with witty and humorous expressions to keep the general good feeling of the banqueters alive. As he in turn introduced the speakers, he was found well fortified with some witticism that aptly fitted each one he called on.

President Robert Cameron reviewed the early history of the Association and contrasted the present four-day convention with the two-hour convention held in Boston in 1911. He expressed himself as especially pleased that the course for training young men in the profession of gardening at Massachusetts Agricultural College in conjunction with the Association had been adopted during his term of office, and made an appeal to the mothers to interest their sons in gardening, the oldest and noblest profession, and not to discourage them by commenting on their work in the dirt, for no gardener works in dirt, but in soil. He concluded by wishing all an enjoyable time during the remainder of the convention, and in saying he was proud to see so many ladies present.

John Barnet, of Sewickley, Pa., President-elect of the Association, responded by expressing his thanks for having the high honor of being elected President conferred upon him, and that he would strive to uphold the honor to his utmost, although he fully realized it would be difficult to surpass the records of some of his predecessors.

Thomas W. Head, of Red Bank, N. J., after some witty remarks, contrasted the present convention with those of earlier years and spoke of the previous history of the Association when he had held office as President and then as Treasurer. He also referred to the attendance of the ladies at the convention and the dignity they added to it.

James Stuart, of Mamaroneck, N. Y., endorsed what the former speaker said, adding that he, too, was well acquainted with the early history of the Association, in which he had held office as Treasurer. He referred to the prestige the Association enjoyed as a national organization and to its remarkable growth in the few years since he had been Treasurer.

Edward I. Farrington, of Boston, Mass., complimented the members on their connection with such a worth-while profession as gardening and that they should feel proud of the regard in which it is held. He referred to the course of training in gardening adopted by the Association as being a splendid move, and further congratulated the members on their success in having aroused the interest of the estate owners in their Association.

William Munro, of San Mateo, Cal., spoke of his observations in the East and commented most favorably on the Eastern scenery and the cultivation of plants and flowers. He particularly referred to the gladioli and dahlias, of which he said the size of those growing in the California gardens are many times larger than those he had noticed on exhibition at Horticultural Hall. He also spoke of the pleasure he was deriving from his first attendance at a convention of the National Association of Gardeners, and congratulated the members on their organization.

Mrs. B. Hammond Tracy of Wenham, Mass., responded to the remarks of President Cameron on behalf of the mothers and said that they would encourage the boys to take up the profession of gardening, but that the profession of gardening must be put forth as one of the fine arts and the boys impressed that if they made good there would be advancement in the profession of gardening for them and that they would be regarded as creditable citizens in their communities. Mrs. Tracy also referred to Mr. Munro's remark on the size of flowers grown in the Eastern part of the country and those grow in California, especially the dahlias and gladioli, and said that Mr. Munro had noticed the exact point for which the Eastern growers were striving, that is, to reduce the size of the enormous dahlias, to secure quality rather than quantity, and to produce such a size as can be more artistically and easily handled by women in their homes for decorative purposes.

John H. Troy, of New Rochelle, N. Y., spoke enthusiastically of the benefit that the recently adopted course for training young men would bring not only to the gardening profession itself, but to the country as a whole, for Mr. Troy stated that it was only by bringing a love of Nature and of the beautiful in the lives of the boys and girls of this country that the radical "isms" can be wiped out.

W. A. Manda, of South Orange, N. J., waxed eloquent in his reference to the profession of gardening and the great privilege it is to be a member of it. He said he cherished the early years of his life which he passed as an active gardener and considers it a pleasure to be connected with the organization of professional gardeners as an associate member. He compared the profession of gardening with that of medicine and law, stating that while the two latter professions prospered on the misery of the people, the gardening profession brought joy into their lives.

Joseph Manda, of West Orange, N. J., called to mind the early history of the Association, of which he is one of the oldest members, which he pictured as quite different from that of the Association of today. He referred to the training of gardeners of former days such as he secured in his youth and the many menial tasks that were the lot of the young gardeners to perform as compared to the present-day training advocated by the Association.

William Kleinheinz, of Elkins Park, Pa., called attention to the fact that he was the last President of the old Association and the first President after its reorganization, and that he was happy he had salvaged the name of the Association when he viewed the progress it has made in the years intervening as indicated by this year's convention. Boston, he said, is associated in his mind with his earliest gardening days in this country, and the first prize that he was awarded in America. He spoke amusingly of some of his former visits to Boston, which was relished by the New England members.

Thomas L. Cameron, N. J., spoke of the gardeners in a royal manner as others see them, but in a vein that made it quite clear that he did not agree with those who appeared to believe that there was something royal about the gardeners, and those who engaged in the profession. He also stated he did not agree with the impression created by the President that Boston was the first to welcome the ladies, for they had been attending the conventions for some years, although not in as large numbers as they appeared in Boston, an indication that the conventions are a growing attraction for the ladies.

Edward I. Farrington, of Boston, Mass., spoke of the arrangements of the convention, and the reception which had been made

vocated to so arrange the grouping of flowers that they will give ideas to the public on how the flowers may be adapted for home decoration. Under the present form of exhibiting, Mr. Wheeler said, the public gained merely a massed impression of the quantity and quality of flowers, and not the artistic use to which they may be put in the home. He sought the co-operation of the gardeners in having this new system of exhibiting plants and flowers adopted.

D. L. Mackintosh, of Alpine, N. J., immediately started his audience to laughter when he arose and continued to keep them laughing with his Scotch wit until the time when he took up the mission that was before him. He then referred to President Cameron's urgent appeal to the attendants to the convention that they be on hand early the next morning and that they must get together by 8.30 A. M. Mr. Mackintosh stated that this amused him immensely, for in New York and New Jersey a half day's work was usually accomplished before that hour. He said that the many gardener friends present at the convention, both visitors and local members, had decided they should do something to assist Mr. Craig, who was retiring from the ranks of the professional gardener to engage in the commercial field, so that he might be on time when he took up his new duties. He then turned to Mr. Craig and spoke in feeling words of the loss his retirement would be to the profession, and dwelt on the great work Mr. Craig has done in the past for the benefit of the cause. He stated he was sure, however, that Mr. Craig's interest in the gardener would not wane as he entered upon his new duties. He then produced a package which he handed to Mr. Craig, saying that he was about to present him with a gold watch and chain as a token of esteem from his many friends among the gardeners.

Mr. Craig, who was overcome and surprised, said words failed him to respond properly in accepting this gift from his friends. He could but say how much he appreciated their thought and regard for him and that they could feel sure that his interest in them would remain as staunch as it has ever been.

The banquet adjourned, following the singing of "Auld Lang Syne," led by Mrs. John Tonkin, of Chestnut Hill, Pa., who had favored the members and their guests several times earlier in the evening by rendering pleasing solos in a most charming and delightful manner. Throughout the evening the Ecker Orchestra furnished music, Mr. Ecker also delighting the guests with several favorite songs.

AUTOMOBILE TOURS TO FAMOUS ESTATES

Some fifty automobiles left the Hotel Brunswick at nine o'clock on Wednesday morning, covering some of the principal avenues and boulevards of the city of Boston to Revere Beach, "the Coney Island of New England" as it is often called, and thence on to the shoe city of Lynn. The route was followed on to Salem, known throughout the country as the "Witch City," and then to Frides Crossing. Here the beautiful lawns, shrubberies, and rockeries of the Mrs. Henry C. Frick estate were observed, as were also the attractive plantings of shrubs and trees, the delightful willow walk, and the lovely rose walk of the estate of Mrs. William H. Moore.

The party next toured to Orchidvale, the A. C. Burrage estate at Beverly Farms, where an inspection was made of the wonderful orchid collection, regarded as the finest private collection of orchids in this country. A buffet luncheon was here served. Leaving Orchidvale, the automobiles proceeded along the ocean route through Manchester, Magnolia, a popular resort, and Gloucester, a quaint and charming city, as well as the greatest fishing port in America, whose harbor is one of the most beautiful on the eastern coast, and on to Ipswich, where Castle Hill Farm, the estate of Mr. and Mrs. R. T. Crane, Jr. and over which Robert Cameron, the President of the Association, presides, is located. Mr. Crane was present to welcome the guests to his estate, speaking of the pride he felt in his estate and that it had never before been in the excellent condition it was to be found in today. Mr. Mackintosh responded on behalf of the guests, thanking Mr. and Mrs. Crane for their cordial hospitality. This estate commands a beautiful view of the sea, and has miles of rolling dunes of pure white sand, on which an old fashioned clambake was thoroughly enjoyed by the two hundred twenty guests. The maze, the rose garden, the Italian garden, and the broad stretches of lawn before the mansion were of particular interest.

Leaving Ipswich, the automobiles passed on to the Thomas E. Proctor estate at Topsfield, where James Marlborough, who is in charge, escorted the party through the extensive greenhouse range, in which were to be seen the finest Winter flowering begonias found in America, and other wonderful specimen stove plants. The convention party was treated to refreshments as the guests of Mr. Proctor, after which it was conducted through the unique and especially attractive rock garden.

The final stopping place of the first day's tour was at Cedar Acres, Wenham, where over sixty acres are planted in dahlias and gladioli, which, together with the charming floral display house, were visited. The guests partook of a delightful repast

before departing on the return trip to Boston. Mr. Kennedy on behalf of the visitors thanked Mr. and Mrs. Tracy for their cordial welcome to which both Mr. and Mrs. Tracy responded.

On the following day the convention party motored to Cambridge, passing around the buildings and campus of Harvard University, which is the oldest college in this country, and stopping at the Botanic Museum where the famous Ware collection of glass flowers is housed. These glass flowers, prepared by Leopold and Rudolph Blaschka, are so perfectly modeled that it is difficult to distinguish them from real flowers.

The automobiles proceeded on to Lexington, famous for the part it played in the early history of America, and on to Concord, where the party stopped to view the statue of the "Minute Man," which marks the spot where the farmers arrayed themselves against the British. Concord is also the home of noted American authors, Hawthorne, Emerson, Thoreau, and Alcott, whose houses are still standing. Passing through Sudbury, where still stands the ancient Wayside Inn, erected in 1687, the automobiles continued on to Wellesley, driving by the buildings and campus of Wellesley College, and on to the Henry S. Hunnewell estate, where the attendants to the convention became the guests of Mr. and Mrs. Hunnewell. Mrs. Hunnewell received the ladies in her home where luncheon was served to them on a broad piazza, overlooking one of the finest scenes of hills and water to be found anywhere. Mr. Hunnewell was host to the men of the party at luncheon which was spread on the lawn. Following the luncheon, Mr. Mackintosh thanked Mr. and Mrs. Hunnewell for the hearty reception they had extended, which they graciously acknowledged.

The automobiles drove through the Arnold Arboretum, one of the most notable arboretums in the world, covering two hundred seventy acres. Practically every tree and shrub in the world which is able to thrive in the New England climate is to be found in these grounds, which although an adjunct of Harvard University also belongs to the park system of Boston, the college and city sharing in its support.

At Brookline, the next stopping point, the estate of Larz Anderson was visited, which contains among other ornamental features, an Italian and a Japanese garden. Here the party was treated to a delicious spread. A visit was made to the estate of Mrs. C. G. Weld where there are long stretches of beautiful lawn; to Faulkner Farm, the E. D. Brandegee estate, among whose features are an Italian and an interesting rockgarden, and to Prof. C. S. Sargent's estate, Holm Lea, noted for its sweep of lawns, lilacs, rhododendrons and rare trees.

As the photographs of the convention and the detailed description of the estates visited were received too late for publication in the September number, they will appear in the October number.

LADIES' ENTERTAINMENT

From the very hour the ladies attending the convention arrived at the hotel, until the moment of their departure, they were royally entertained. The Ladies' Committee, including Mrs. B. Hammond Tracy, Chairman; Mrs. W. N. Craig, Mrs. Wm. Anderson, Mrs. George F. Stewart, Mrs. Duncan Finlayson, Mrs. Andrew Rogers, cordially greeted the ladies on their arrival and most courteously treated them throughout their entire stay in Boston. Following the very interesting opening meeting on the afternoon of the first day of the convention, a reception was held at Horticultural Hall at which the Ladies' Committee served tea. In the evening while the men enjoyed a most instructive illustrated lecture on the Arnold Arboretum delivered by E. I. Farrington, at Horticultural Hall, a theatre party was formed for the ladies.

On the morning of the second day, the ladies in attendance at the convention separated into groups to visit the shopping district

of Boston, returning to Hotel Brunswick at noon to become the guests of the Ladies' Committee at luncheon. The afternoon hours were passed at the fashion show staged at the Copley Plaza by Filene. The ladies graced the tables at the annual banquet and were among the guests entertained on the two days' trips to notable country estates in the vicinity of Boston and along the North Shore.

PRESIDENT'S CAMERON ADDRESS

(Continued from page 264)

dening creates a love for horticulture and in this way the beautifying of home surroundings and the improvement of villages and towns are feeling the effects of this good work. The exhibitions of the products of children's gardens are larger and of better quality than ever before. Let us help this good cause along by giving information and encouragement to those who need it.

The building up of the Association with new members is—as it is in all organizations—an important factor. The growth of our organization is slower than it might be because we are more careful in selecting members so that they may be of the standard required of the profession. Our endeavor should be at all times to conduct the affairs of the Association with such uprightness that no criticism should be heard from members or others. I don't mean by this that our Association can be made perfect. I should rather see a limited number of interested members than a large increase in membership from sources that would not be interested in the welfare of the organization.

The time of the year when we hold our convention should be given consideration. We hold the convention too late in the season and the estates which we visit are not seen at their best. This part of the program is of great educational value to gardeners. I personally believe that about the middle of August would be nearer the right time to see gardens and estates when they would be at their best. This subject should be given our consideration.

Let me ask every member to do his little bit to help the organization along. Our profession is the oldest and we may be proud of it.

I regret that our Secretary, Mr. Ebel, was indisposed and had to be absent from the office in New York for several months. I am pleased to see him here today. I wish at this time to thank, most heartily, Miss Dorothy Ebel for the excellent service she gave in her father's absence. She conducted the secretarial work most satisfactorily.

I wish to extend my warmest thanks to the ladies and gentlemen on the various committees who have worked so hard to make this convention a success. I wish also at this time to especially thank Mr. William N. Craig for the interest and hard work that he has put into all the details of the convention.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of the National Association of Gardeners of this district was called by Manus Curran, President of the Sewickley Hort. Society, on Saturday, Sept. 2, 1922, to consider the advisability of forming a district branch of the N. A. G. Mr. Curran was appointed temporary chairman and Henry Goodband, temporary secretary.

It was decided to call this branch "The Western Pennsylvania" branch of the N. A. G. John Barnett was appointed a delegate to the Boston convention held on Sept. 12 to 15.

The following members were heartily in favor of forming this branch: Manus Curran, John Barnett, Wm. Thomson, Jr., Frank B. Reig, John Carman, Arthur Bonsey, Herman Rapp, Wm. Jess, Wm. Falconer, Niel McCallum, David Fraser, Louis Barnett, Alex. Davidson, R. W. Ross, Henry Goodband.

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 Mr. and Mrs. Peter M. Miller, Boston,
 Mass.
 Mr. Lindsay B. Whyte, Boston, Mass.
 Mr. George C. Harbison and daughters,
 Boston, Mass.
 Mr. Hjalmar Berger, Rockville, Conn.
 Mr. Alexander P. Dewar, Boston, Mass.
 Mr. John S. Hay, Philadelphia, Pa.
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 Mr. and Mrs. William Munroe, San Mateo,
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 Mr. Wm. Nicholson, Framingham, Mass.
 Mr. James Marlborough, Topsfield, Mass.
 Mr. Harry Nicholson, Helena, Mont.
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 Mr. and Mrs. Andrew L. Dorward, New-
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 Mr. and Mrs. John Tonkin, Chestnut Hill,
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 Mr. Stewart A. Forbes, Ipswich, Mass.
 Mr. Frank Murray, Forest Hills, Mass.
 Mr. Alexander Michie, Locust Valley, N. Y.
 Mr. William Mills, Holderness, N. H.
 Mr. George Cruickshank, Boston, Mass.
 Mr. C. M. Wagner, Baltimore, Md.
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 ville, Mass.
 Mr. Robert Cameron, Ipswich, Mass.
 Mr. W. A. Manda, South Orange, N. J.
 Mr. John Johnson, Pittsfield, Mass.
 Mr. Robert N. Finnie, Norwood, Mass.
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 Pa.
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 Mass.
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 Mr. William J. Collins, New York, N. Y.
 Mr. and Mrs. Andrew Wilson, Springfield,
 N. J.
 Mr. Wm. F. Leary, New Rochelle, N. Y.
 Mr. George W. Strange, New York, N. Y.
 Mr. and Mrs. John Barnet, Sewickley, Pa.
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 Mr. Eric H. Wetterlow, Manchester, Mass.
 Mrs. William Stewart and daughter, Little Ontario, Canada.
 Mr. M. C. Ebel and daughter, Summit, N. J.
 Miss Helen Hamblen, Freeport, L. I.
 Miss A. L. Moran, Madison, N. J.
 Mr. and Mrs. William C. Rust, Brookline, Mass.
 Mr. Edgar Morrison, Springfield, N. J.
 Mr. D. L. Mackintosh, Alpine, N. J.
 Dr. George T. Moore, St. Louis, Mo.
 Judge Charles W. Hoyt, Scituate, Mass.
 Mr. Owen G. Owen, Southampton, L. I.
 Mr. Bruce Butterton, Newport, R. I.
 Mr. James Brown, Newport, R. I.
 Mr. Olaf Drewes, Boston, Mass.
 Mr. J. D. George, Beverly, Mass.
 Mr. Niels G. Erickson, Magnolia, Mass.
 Mr. Thomas J. Murphy, Chestnut Hill, Mass.
 Mr. W. D. Johnson, Nahant, Mass.
 Mr. Edward W. Newman, Wollaston, Mass.
 Mr. Alexander Taylor, Readville, Mass.
 Mr. Herbert W. Clark, West Manchester, Mass.
 Mr. Frank G. Sealey, New York, N. Y.

AMONG THE GARDENERS

James Methven succeeds W. N. Craig as superintendent of Faulkner Farm, Brookline, Mass.

Irving Stewart, son of George F. Stewart of Waltham, and formerly head gardener at the Portland parks, Portland, Me., is successor to James Methven in charge of the Coonley estate, Readville, Mass.

Gustaf E. Karlson accepted the position as head gardener to H. A. Hayward, Franklin, Mass. He was formerly with Mrs. Adele D. Thayer of Franklin.

J. H. Snyder, formerly in charge of the late General C. H. Taylor's estate, Buzzard's Bay, Mass., has secured the position of superintendent to Colonel E. H. R. Green, Dartmouth, Mass.

Alfred H. Wingett, 54, recently died at his home on the Allen Winden estate, Lenox, Mass., of which he was superintendent. He was born and educated in England and learned the profession of horticulture and landscape gardening in that country. Coming to America in his early youth, he immediately went to Lenox where he later secured the position of superintendent which he has held ever since. He was an expert in his line of work and well known in the profession of gardening, holding office in the Lenox Horticultural Society. He is survived by his widow, and daughter, Mrs. Charles M. Sears of Salem, by his first wife.

Albert Millard resigned his position as superintendent of Greystone, Mr. Samuel Untermyer's estate, at Yonkers, N. Y., and has been succeeded by Charles A. Mackay, who recently arrived from England.

LOCAL SOCIETIES

WESTCHESTER AND FAIRFIELD HORT. SOCIETY.

The regular monthly meeting of the above society was held in the Y. M. C. A. building, Greenwich, Conn., on Tuesday, August 8.

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The special exhibition committees reported great progress in arrangements for the annual Dahlia Show, which is to be held in the Y. M. C. A. building, Greenwich, September 19 to 21.

One new member was elected, and the usual display of flowers and vegetables was well filled. First prize was awarded to Wm. Smith for a collection of dahlias; second, to John Andrews, Primulinus hybrids; third, W. D. Robertson, fancy leaved caladium. Other exhibits were as follows: James Linane, *Lilium speciosum*; H. F. Bulpitt, *gladiolus*, Primulinus hybrids; James Tough, *Buddleia variabilis*; Wm. Smith, *gladiolus*. James Linane received first prize for collection of vegetables, and H. F. Bulpitt, second, for tomatoes (Best of All).

P. W. Popp gave an interesting talk on his trip through the West, describing the weather and horticultural conditions prevailing there. T. J. BULPITT, Cor. Secy.

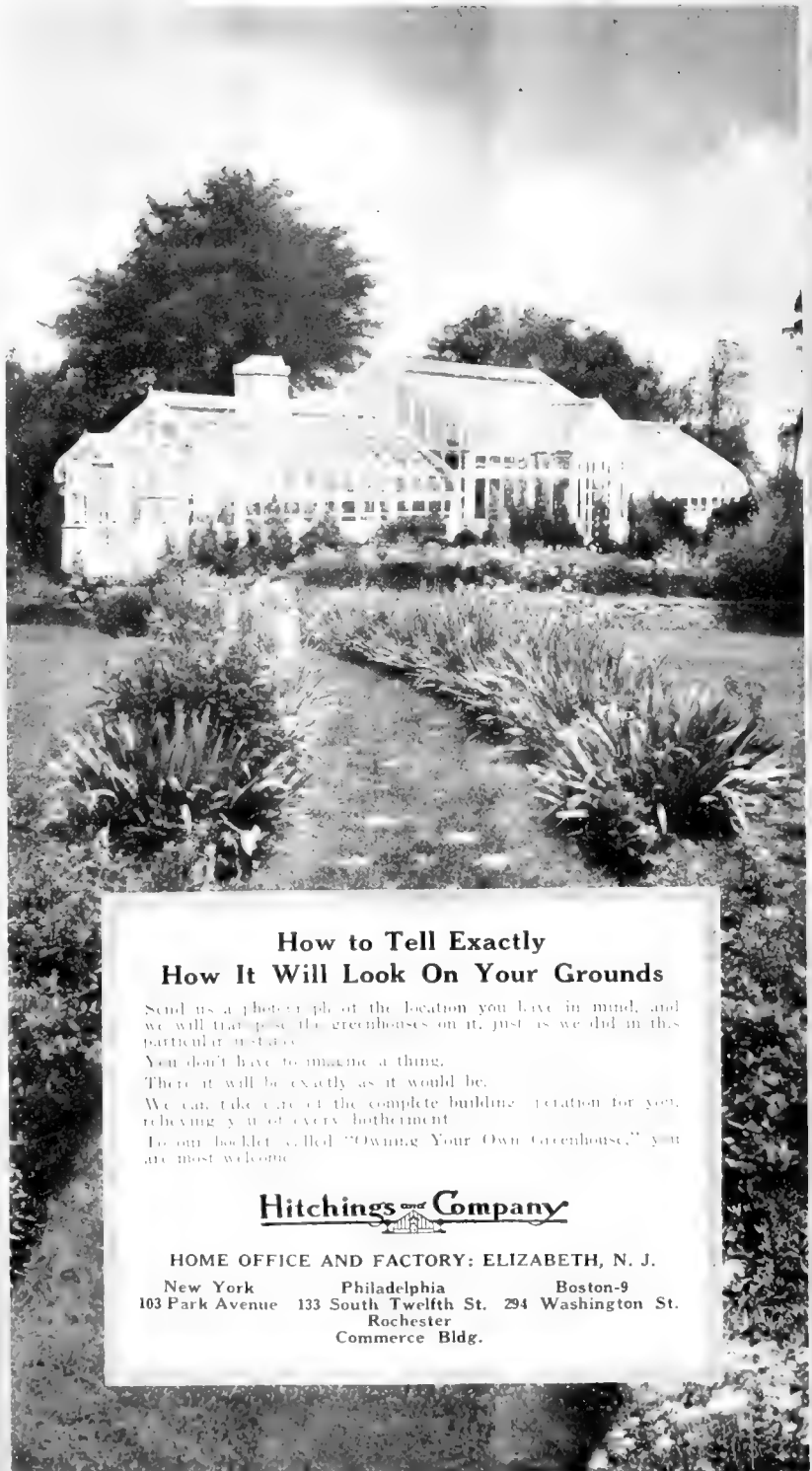
CLEVELAND HORT. SOCIETY.

The regular meeting was held on August 10, with R. P. Brydon in the chair.

The exhibits of the evening were two vases of *gladioli* by F. Eckhardt, who was awarded a Cultural Certificate for them.

Two new members were elected and two more proposed for membership. The chrysanthemum show schedule and prize list was presented and approved by members. The show will be held in Woodward Mason Temple, Nov. 9 and 10.

Thursday, Aug. 16, a number of gardeners from Sewickley, Pa., visited Cleveland as guests of this society, there being about twenty-five in all. After visiting a number of places, and seeing and admiring a supper was served, and about forty-six were present. The club made the opening speech, welcoming the visitors in behalf of the society, and Mr. Barnett, of Sewickley, Pa., returned thanks in behalf of the visitors, in which he mentioned the Cleveland members of the society. The club then made the closing speech, and Mr. Manning, of Boston, was called on for a few remarks and of Sewickley, spoke on the beautiful estates that had been visited and of the pres-



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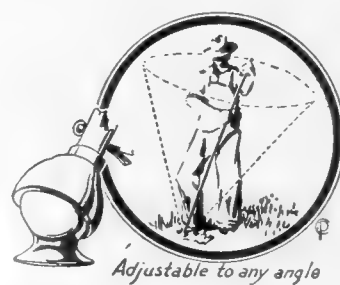
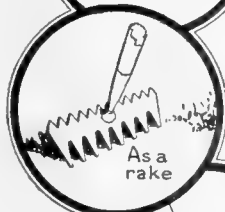
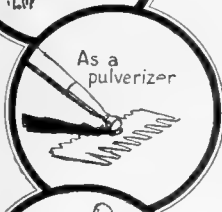
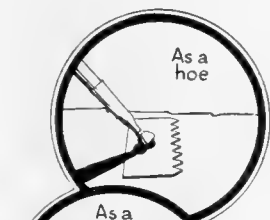
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tates and of the enthusiasm it puts into their work.

O. M. Eastman, supervisor of the school garden department of Cleveland, talked on the development of that work in schools, and the help given by the local gardeners.

The party broke up by the visitors giving a rising vote of thanks and three rousing cheers to their hosts. W. J. Bruce, Secy.

THE OFFICIAL ORGAN

During the convention of the National Association of Gardeners at Boston, inquiries were made as to how the GARDENERS' CHRONICLE, as the official organ of the gardeners, can be improved to make it more interesting to them. It was the opinion of most of those approached that by supplying more news of the doings of the gardeners; also what transpires at the local meetings of gardeners' societies which would be of interest to similar societies elsewhere; unusual experience in the garden which gardeners encounter in the cultivation of plants, would all add much to make the paper interesting to them.

The GARDENERS' CHRONICLE has often appealed to local societies and to gardeners individually to contribute such news as would be of interest to the gardening craft, but it has never met with sufficient response to be of importance. The editor will gladly give space to lively news items when they are received, but he is dependent on having them sent to him for the GARDENERS' CHRONICLE is not in a position to maintain editorial staffs throughout the field which it covers, which is national.

Will the gardeners reading this notice please direct the attention of their fellow gardeners and also of the meetings of the local societies to it?

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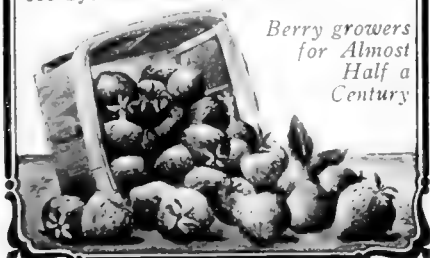
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ervation of the natural beauty. R. Weeks, of Mansfield, Ohio, spoke on the knowledge gained by gardeners in visiting other es—
Communications should be addressed to Editor, Gardeners' Chronicle, 286 Fifth Avenue, New York, N. Y.

EDUCATING WILD PLANTS

Those who attempt to introduce wild plants into their gardens by means of seeds, often find it difficult to get the plants established in this way. Although they seem to grow well enough in their native haunts, they are slow to germinate in cultivation or fail to come up at all. It is likely that we unconsciously contribute to this failure by treating the seeds differently than they are treated in Nature. For instance, we are likely to keep them in a dry room over Winter, when they are accustomed to lie in the cold and sodden ground through that season. It appears, however, that when wild flowers are introduced into cultivation and propagated by means of their seeds, the slowness to sprout wears off, and thereafter they grow readily. A scientific explanation of the facts seems to be that only those seeds which can grow at all in such situations are likely to leave descendants, and since children are like their parents, there is soon bred up from these a race of plants that is amenable to garden cultivation by the elimination of those less able to survive in such situations.—*American Botanist*

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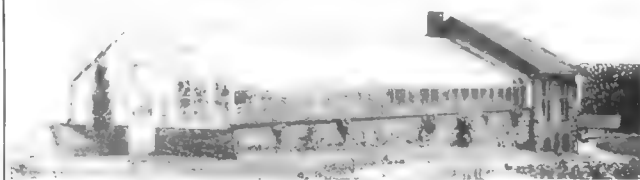
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

OCTOBER, 1922

No. 10

Things and Thoughts of the Garden

WILLIAM N. CRAIG

PLEROMA ELEGANS is an old greenhouse plant introduced about eighty years ago and native to the Organ Mountains in Brazil. There are many varieties of *Pleroma*, but for garden purposes *elegans* is the one most worthy of consideration. Years ago we were told that *Lasiandra* was the correct name and now botanists call it *Tibouchina*, but amongst professional gardeners the name *Pleroma* will continue to cling to it, just as they prefer to class *Codiaeums* as *Crotons*. *P. elegans* is sometimes grown into specimen plant size and being a lusty grower, a number of pinchings are needed to give it the necessary shape and size. Its deep violet colored flowers are of particular value in the garden during Summer and it is really one of our most persistent bloomers, the flowering season continuing for four or five months. In tubs it is seen at its best and if plants have been well pinched and tied in a little to make them shapely, they present a splendid show for a longer period than any other plant I can name. Propagation is easy and the plants being rapid growers, good sized specimens are soon attainable. While *Pleromas* will succeed in full sunshine, they are even better in partial shade.

* * *

Members of the National Association of Gardeners who were privileged to see the beautiful rose gardens on the estates of Mrs. R. T. Crane, Jr. at Castle Hill Farm, Ipswich, and Mrs. Henry Hunnewell of Wellesley were amazed at the wealth of bloom carried on the hybrid teas in the middle of September. It is commonly supposed that Massachusetts is too far north to permit of very successful out-door rose culture, and the picture of these two gardens with such a wealth of glorious flowers and foliage, free from black spot or mildew, caused many expressions of wonder. A very successful Newport, R. I., grower said the plants in his garden were almost leafless. Another from Pennsylvania remarked that nothing like that was possible near Philadelphia and a third hailing from favored Long Island, stated that his had few flowers, and foliage was badly mildewed.

These are not the only rose gardens in Massachusetts but they are good enough examples of what may be done in a rigorous climate, provided suitable locations are selected, beds well prepared and drained, plants frequently sprayed or dusted for insect pests and diseases, decaying foliage carefully removed as it falls (this is most important) and ample Winter protection afforded. This latter is a big and expensive item. Plants are all tied or laid down and buried with soil over which mouse proof wire

is placed and over this again, a Winter mulch. Ramblers, standards, and dwarfs are all buried in this way, the only absolutely sure method of Winter protection. No roses on their own roots are to be found in these New England rose gardens, as they are of little value, and the one time popular hybrid perpetuals are, sad to state, rarely met with.

* * *

In listening to an address by Ernest H. Wilson in Boston on his recently completed two years' world tour, I was specially interested in what he said of *Todea superba*, *T. hymenophylloides*, and *T. barbara* as found growing in New Zealand. Mr. Wilson came across many acres of them, especially the beautiful *T. superba*, growing in the forests in semi-darkness and where there was a constant drip. The ground where they luxuriated was marshy and to avoid sinking down, it was necessary to step from plant to plant of the *Todeas*. The plants were wonderfully luxuriant under these conditions and it seems not at all surprising that here and in Europe cultivators have trouble with these beautiful ferns in giving the necessary subdued light and constant sprays to make them feel in some measure at home.

* * *

Gladiolus primulinus, an African species, has given us the most graceful and decorative race of this popular bulbous flower. We ordinarily look upon gladioli as plants which grow for several months, flower, and then have a long period of rest. It came as a surprise therefore, to hear Mr. Wilson state that under the spray of the great Victoria Falls of the Zambesi River, *Gladiolus primulinus* was thriving most luxuriantly and evidently proving a perpetual bloomer. There no chance exists for any dry period as spray falls continually, in which *primulinus* was revelling. Perhaps in the southern tips of Florida and California where it is practically frostless, this useful gladiolus under irrigation might prove to be a perpetual bloomer as in its native home on the dark continent.

* * *

Amaryllis belladonna is the only true amaryllis, all of the many hybrids of varied colorings which are horticulturally called amaryllis and will no doubt continue to be so named are *Hippeastrums*. *A. belladonna* proves to be a useful hardy bulbous plant in many parts of America, but for many of us culture in pots or frames is necessary. The finest lot I have seen in New England is planted out in special frames where they can get the necessary Winter protection and also the equally neces-

sary Summer rest. The color of *A. belladonna* is so much more pleasing than that of the *Hippeastrums* that it is surprising that more are not grown. The flowers furthermore are produced in Autumn, a period when really nice blooms are none too abundant.

In Cape Colony Mr. Wilson found *A. belladonna* wild, in great abundance and a point he mentioned was that residents there informed him that the plants always bloomed far more profusely after a fire had swept over the land where they were growing. Whether this cleans out various plants likely to smother them in some measure, or whether the potash from the fire gives the plants a necessary plant food, I am not prepared to say, most probably the potash does the trick.

* * *

Nerines are most useful and beautiful Fall flowering bulbs, and they are rapidly growing in favor on private estates. Some wideawake commercial men are also taking up their culture. Thomas Roland, of Nahant, Mass., one of the most expert plantsmen in America, grows a large quantity and annually raises many thousands of seedlings. Charles Sander, superintendent to Prof. C. S. Sargent, of Brookline, has for many years been a large and successful cultivator and has flowered thousands of hybrids. H. J. Elwes in England is a great specialist with nerines and has raised many fine varieties. At one time *N. Fothergilli major* was about the only sort grown, it is still probably the best and most vigorous variety, but in addition to the scarlet forms, there is a wide range of colors, varying from deep rose, pink, salmon, and mauve to pure white. *Fothergilli* produces much the largest bulbs but the smaller bulbed varieties bloom more profusely and usually somewhat later. I have had as many as fifteen spikes on a six-inch pan of *N. excellens*.

* * *

Points to remember in the culture of nerines are, that while growing, they require a good water supply and some feeding, also a cold house. When growth is completed, plants should be gradually dried off and as leaves become discolored, cease watering entirely and during the resting period, they should be given a thorough baking in the sun, preferably under glass. Nerines furthermore will flower only sparsely until pot bound, and for that reason, they should be kept in the same pots for several years, until crowded bulbs make a shift necessary.

Owing to the long spell of warm dry weather in September and October, Autumn tints are this season unusually brilliant and the fruits on all berried trees and shrubs have an intensity of color which make them extremely attractive. Amongst the berried shrubs, the *Symplocos* are particularly striking on account of their bright blue berries. *S. paniculata*, also called *cratagoides* is the best known species and a native of the Himalayas. It is hardly as far north as New Hampshire and any one desiring to possess a striking berried plant of unusual color should procure one. As it is a robust grower, it should be given a location where it can have space to develop and show its individuality. While there are nearly three hundred species of *Symplocos*, only *paniculata* is hardy for our cold states. *S. tinctoria* requires a warmer clime and about all other species are tropical or semi-tropical.

* * *

Fall fruiting strawberries and raspberries make a welcome addition to our desserts. The everbearing strawberries have become quite popular and in October they are bearing abundantly fruits of excellent flavor. Lucky Boy one of the newer varieties is the best I have yet come across. Among raspberries, La France now carries quantities of fine fruit and the flavor is very good. This is the finest acquisition among raspberries for many years. It is not quite as hardy as Cuthbert, St. Regis and other better known varieties, but given a little Winter covering, it comes through in good shape. Raspberries and cream in mid-October are very welcome, even though there is at that time an abundance of other fruits.

* * *

Poultry yards are not usually associated with flower culture. I was therefore very much interested and pleased to note how a thrifty and neat Swedish family screened, shaded, and at the same time, adorned their yards. From a distance no wire fences were discernible, outside of them such plants as *Boltonias*, *asteroids*, and *Latisquama*; *Helianthus* "Miss Mellish" and *Helenium autumnale superbum* were planted. As these grew up, a stout string was run around them and at intervals fastened to the fence to hold them erect and the effect was certainly very good. All these plants are of simple culture and as the bulk of private estates now have poultry yards, here is a way to screen them and also beautify them. *Clematis paniculata* I have seen used on one occasion for a similar screening purpose.

Flowering Plant Novelties

FRANK B. MEYER

THE objects of this little essay are two. The first is to point out a way in which amateurs may, even with but comparatively small means, have enjoyment of the rarest novelties among the flowering plants of special favor in their eyes and even have possession of treasures too costly for their individual purses. The second object is to try to maintain the thesis that by professional gardeners and their employers the rare and the most beautiful among several flowering plants of great recent improvement are appreciated too little.

The first object may perhaps be attained sufficiently by telling of a plan naturally evolved by five lovers of flowers in a small town of the Central West. In that town a dentist used to find fresh air and relief from a profession that, more than most people think, wrecks the nerves of

the practitioner as well as those of his patient, in his garden. A visiting friend, a lawyer who had risen to the dignity of a judgeship, was attracted by a bed of flaming oriental poppies, and soon was himself also sowing seeds and setting plants. The persuasion to go and do likewise came to a neighboring manufacturer in the form of an armful of beautiful gladiolus blooms presented at the "psychological moment." In the time of the loved wife's illness a second lawyer and judge was brought to realize what flowers can say when the sympathetic dentist brought to the door an armful of big peony blooms. A retired business man, whose modest competency was acquired without his having accumulated much to retire to, was interested by the evangelizing friend, one opportune day in

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The Regal Peony

FLORUM AMATOR

THE peony by reason of its stately beauty occupies a commanding position in our flower gardens from early May till mid-June. It is indeed a regal flower today just as it was nearly fifteen hundred years ago in China where it had become the chosen flower of emperors and the admiration of painters and poets, who made it a subject for brush and verse. The peony is an enduring plant; it not only has maintained its place as a favorite through the centuries but also is the hardiest of all our herbaceous perennial flowering plants.

In general cultivation we find only three species of the peony. These are *Paeonia officinalis*, which grows wild in southern Europe and which received its name, *Paeonia*, now given to the entire genus, from one Paeon, a physician who according to myth or tradition, healed the wounds of the war god, Mars, with the roots of this plant; *Paeonia moutan*, the tree peony; *Paeonia albiflora*, or as it is more generally called, the Chinese peony. Both the Chinese and the tree peony are indigenous through northern Siberia to the borderland of China.

There are comparatively few varieties of *Paeonia officinalis* although in mythical history it antedates both *P. moutan* and *P. albiflora*. The most cultivated of the *P. officinalis* varieties is *rubrum*, the well-known red peony of the old time flower gardens, grown chiefly today because it flowers from two to three weeks earlier than any of the *P. albiflora* varieties to which it is much inferior, but, nevertheless from its early blooming habit, worthy of cultivation.

P. moutan, the tree peony, receives its common name, tree, because it grows in a shrub-like form and attains a height sometimes of three to four feet. Its large blooms are in extremely delicate shades of color and also appear three to four weeks earlier than those of *P. albiflora*. The plant of *P. moutan* is entirely hardy, but the buds, on account of appearing very early in Spring, unless protected, are often injured by late frosts. The tree peony though it has not gained in America or Europe the popularity of *P. albiflora* (the Chinese) varieties are fully worthy of cultivation. This peony was brought through the efforts of Sir Joseph Banks into England in 1794. An envoy of the Dutch East India Company after his travels through China in 1656 had enthusiastically described this peony in a report to his company, which report Sir Joseph Banks had read.

P. albiflora, which in its extremely large and constantly increasing number of varieties, is the most widely cultivated and most popular of all the species, was brought into England not long after the tree peony. The precise date is not fixed but Sir Joseph brought into England *P. albiflora*, variety *fragrans* in 1905, and *P. albiflora Whittleyi* was brought in by Mr. Whittley in 1808.

Thus the peony, the favorite flower of the Chinese emperors as early as the fifteenth century, and received with great favor in Japan in the seventeenth, was not brought into England till about the eighteenth century. From England the peony was soon introduced into France and about the same time into America.

In France, however, in the gardens of the nobility under the skillful cultivation of the French gardeners, the modern history of the peony began, and many sports appeared and hybrids were produced. The French especially, and also the Dutch and Belgian peony specialists, have given to the world many new and beautiful varieties of the *al-*

biflora species. M. Dessert and M. Lemoine of France during the last two decades have disseminated many of the finest varieties and in England the Kelways have added desirable varieties to the list. It was not till about 1850 that peonies began to be popular in America, though Mr. McMahon in 1806 speaks of five kinds, and William R. Prince mentions a collection of forty varieties in 1828, and again in 1862 speaks of having twenty varieties of tree peonies in his garden at Flushing, Long Island. In the West, H. A. Terry and Mrs. Sarah A. Pleas of Iowa, and in the East, John Richardson and George Hollis have sent out not a few varieties of merit.

The claims of the peony for a large place in our gardens are the glorious beauty of its large flowers in many colors and forms; hardiness even where the Winters are severe, and hence permanency; easy culture; ready adaptability to different soils and situations; freedom from disease and insects; utility as cut flower and as a plant in artistic landscape effects.

The species of *Paeonia* known as *albiflora*, or Chinese peony, has been divided into eight types, based on the forms of the flowers, by the American Peony Society: single, having a single row of white guards and yellow pollen bearing stamens; semi-double, having several rows of wide petals, a center of stems and partially transformed petaloids; Japanese, with wide guards the same as single, but with stamens and anthers greatly enlarged into narrow, thick petaloids of various colors, tipped with vestiges of the yellow anthers devoid of pollen; anemone, going a step further in the process of doubling, and having the stamens all transformed into short, narrow petals forming a round cushion in the center of the flower; crown, having wide petals developed in the center of the flower, forming a high crown with narrow, short petals in a ring or collar around it, the crown and guards often being of one color, and the collar another or lighter shade; bomb, in which all the center petals are uniformly wide, approaching the guards but distinctly differentiated from them, and forming a globe-shaped center without collar or crown; semi-rose with petals all uniformly wide but loosely built and with a few pollen bearing stamens visible or nearly concealed; rose in which the process of doubling is completed, all the stamens being transformed fully into wide evenly arranged petaloids; similar to guards, forming a perfect rose-shaped bloom.

As J. L. Coit of Cornell University has said in his excellent monograph on the peony: "The peony will grow almost anywhere in the United States where apples will grow." Peonies will thrive to some measure in almost every location, where the drainage is good, but will not endure wet feet. They prefer a moderately moist, deep, rich sandy loam. In such location and soil we may plant peonies without further preparations.

Though the location and soil are both favorable, better results may be obtained, if several months or weeks before planting we incorporate in the soil to the depth of two feet a layer, of six inches or more deep, of thoroughly decayed manure. If where the peonies must be set out, the soil is naturally very poor, it should be removed to the depth of two feet and after a layer of manure is dug into the bottom of the excavation, it should be filled up with a compost of about three parts of rotted sod or rich field sod, one part rotted manure and one of leaf mold. If the field soil or sod is heavy clay, incorporate about one sixth part sand. When finished, the surface of the bed

or border should be about six inches above the level to allow for settling.

In setting out peonies, a space three feet in diameter should be allowed for each plant. The crown of the plant or roots, when set out should be no more than three inches nor less than two below the surface. Too deep planting sometimes appears to cause a paucity of flowers. The roots, after they are planted should be covered with several inches of coarse, strawy manure, or manure and leaves, the coarser part of which should be removed in the Spring and the finer dug into the soil, care being taken while so doing not to injure the tender crowns. Preferably peonies should be set out in September or October. From these autumn-set plants, some blooms may be expected the next May and June. Peonies may also be planted in early Spring, but these Spring-set plants should not be expected to flower to any extent until May and June of the next year.

Peonies have a variety of uses in the garden and landscape work. They are suitable for border planting, especially when the border is at the same time the boundary of a garden or lawn. They are even more effective when set at intervals among other herbaceous perennials than in a continuous row. Clumps of peonies may be set on small lawns or on each side of steps leading up to a veranda. They are equally as effective when planted in great masses at the turns of drives or walks. Large groups of peonies of the same variety or of varieties whose flowers harmonize in colors, may be planted in open spaces on large grounds, giving an excellent effect. Peonies are not averse to a partly shaded position and in such, their blooms are of a deeper color and their flowering period is lengthened.

The peony is a plant which in poor soil and in an unfavorable location, and with little care, gives greater satisfaction than almost any other plant under like conditions. Nevertheless, it greatly appreciates a suitable location, rich soil, and careful culture, and freely responds to these better conditions by producing blooms of a higher quality and in larger number.

FLOWERING PLANT NOVELTIES

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the Spring, during a long ramble in the woods, for wild flowers had not been altogether neglected in favor of those modified, and possibly not in every case improved, by the hand of man.

With interest thus aroused the five friends were stimulated by visits to one another's gardens. Each took delight in showing to the others his latest acquisitions. The beholding of a new prize in a garden visited awakened the desire to possess it, or something like it that might be better. But such rivalry began to be expensive and sometimes the same gladiolus, iris or peony, tulip or narcissus, was found in two of the gardens, which were not far apart. Hence came the idea: Why not have an understanding in accordance with which the expensive novelty might be enjoyed by all five friends while it would be a drain upon the treasury of one alone? This was then crystalized, without writing or even oral pledges, into a definite plan that led to conferences and agreements. The one by-law was that when the game might tend to make the members of this unique organization evasive, deceptive or less manly, they would quit. There was found need of such determination, to be insisted upon with firm will, for the plan naturally led, as plans and bulbs increased and became capable of division, to exchange.

But now, after several years of trial, the association of the friends continues and continues with great success. In the case of the *Gladiolus*, for example, the development

of which into splendid new varieties has been swift and very marked, there is scarcely a single variety of note, no matter where or by whom it was originated, that is not found in one of the four gardens, for one of the five friends has passed away. Even the man who is perhaps most famous of all in the world of this flower comes several times each year to study the collections of these amateurs.

In view of the fact that so much enjoyment and cultural value is found in the study and cultivation of improved floral novelties by amateurs the question might well be raised: "Why is it that these treasures are so little known and appreciated, with some gratifying exceptions, by professional gardeners and their employers?" Is the answer that gardening on a large scale, even that planned by landscape architects and professional designers, is too stereotyped? They seem nearly all to think that the old and the tried are the best and that to enter into the new fields opening up would involve perplexity and confusion. And it is true that the varieties offered in the catalogs of specialists are multitudinous and that some of the old varieties are still among the best. *Iris Pallida dalmatica*, *Peony Festiva maxima*, and *Gladiolus America* are hardly surpassed, all points considered. But there are new irises, new peonies and new gladioli that ought, if possible, to be in every garden and which are worth searching out. When found they will yield satisfaction corresponding to that afforded by new roses, carnations, chrysanthemums and orchids. The desirable new among the four flowers named last are more quickly taken up by the professionals, largely because they are grown in glass houses and consequently can be made to yield quicker results and can be seen more continuously. They are propagated more easily and are, as a rule, seen more conveniently at shows. But the outdoor plants, like the peony and the iris, require planning in the garden and preparation of soil at a season when the general work upon a big place is pressing. And this work still demands much attention when the flowers can be seen at competitive shows or in the exhibition grounds and growing fields of specialists. That such visits, even at the sacrifice of some other things, would be worth while would soon be evident in a quickening and deepening of interest in finer gardening. Employers should not only see to it that their superintendents and gardeners have such opportunities; they ought themselves to enter into the enjoyment of the finest embellishments of modern gardens.

The undertaking on the part of gardeners and owners is not formidable, nor does it any longer involve one in perplexity and confusion. The national organizations like the American Peony Society, the American Iris Society, and the American Gladiolus Society publish from time to time reliable estimates of the desirability of all varieties of the flower that is of their especial interest. The specialists growers themselves now give, as a rule unbiased advice in selecting, and many of them frankly give the authoritative ratings. Increasing attention on the part of professional gardeners and their employers would win favor for the organ of the National Association of Gardeners, our own GARDENERS' CHRONICLE, from the advertising specialists, growers who know, as the writer knows from talking with a number of them, have great cause to lament that the very persons who ought to enjoy most their finest products are giving little encouragement.

The best things are nearest,—light in your eyes, flowers at your feet, duties at your hand, the path of God just before you. Then do not grasp at the stars, but do life's plain, common work as it comes, certain that daily duties and daily bread are the sweetest things of life.

SELECTED.

Water Gardening

ARTHUR SMITH

IT is not only from the mountains, the prairies, sunny fields, or shady woods, that our garden flora come. Rivers, brooklets, margins of lakes, are all invariably fringed with lovely flowers, and fleets of water lilies sail in the deeper waters.

The artistic possibilities of any home surroundings are doubled by the introduction of a fair amount of water. Water always furnishes a pleasing addition to a landscape, and although every country place cannot be so situated as to be blessed with a stream or lake as part of its attractions, yet where they are absent there is sometimes much which could be done in the way of artificially producing a situation in which the many beautiful hardy aquatic and sub-aquatic plants will thrive.

Where streams, ponds and swampy places exist upon an estate there is no part of it which can more easily be made naturally beautiful. While Nature always does much in this direction, situations are frequently seen which are in an unpleasant and unhealthy condition, when there is no reason why they should not be places of beauty, instead of an eyesore. Besides the great variety of picturesque effects that are possible with water, it affords the only means of growing the many worth while plants which are only happy in, or close to water, the chief feature in some being flowers and in others foliage.

Streams with a swift current running between steep banks do not lend themselves to water gardening, but in these cases use can generally be made of the water to supply an artificial pool or lakelet. There is no more attractive addition to any garden than a quiet pool with suitable plants growing both in it and around its margins. There is a soothing effect in the appearance of such a pool on a hot sunny day which is fascinating, and which defies comparison with any other part of the home. It is therefore worth while going to some trouble and expense to secure a feature of this kind, and it is also one of the many things connected with *hardy* plant gardening in which the first cost is practically the only one of any moment.

Of course, the most beautiful of all water gardens are those having their foundation in a pellucid, slow running river, as their natural features are so much better than anything we can make artificially, and the existing vegetation is also always natural to the situation. With a little thought much of this can be so blended with introduced plants of greater range, and in other ways which will suggest themselves to those of artistic taste, that a place of increased beauty may be created through the refinement of Nature by art.

When constructing an artificial piece of water, the available water supply has first to be considered, as without a *regular* supply it is useless to attempt a water garden. Therefore, a water garden should be made proportionate to a certain available supply of water. It is surprising what can be done with a small quantity, provided only that it never fails. A continuous rush of water into and through a pool is not only unnecessary but positively harmful to the welfare of the plants, the more so if the water has been pumped from a well or comes from a public water supply, as in these cases it is invariably cold and hard.

In this connection I am reminded of a pool, really a cement tank, existing in the center of a sunken garden. The tank has to be drained in the Winter, therefore the water lilies are in tubs so that they can be taken in and kept out of the reach of frost. A fountain plays in

the center of the tank and there is also another flow of water into it, both of these are cold and hard. That a continual flow of water of this description into the tank has a very adverse effect upon the plants is very apparent, as their foliage is small and soon dies, and the floral effects amount to very little; and so far as beauty is concerned, it is conspicuous by its absence. To succeed with water lilies in a tank of this kind all that is required is a sufficient inflow of water to scarcely more than cover loss by evaporation, in which case the water will always be during the growing season more or less warm, so that the plants will thrive instead of struggling for existence.

Fortunate indeed are those through whose grounds runs a perennial stream, even if it is only a very little one, for with the help of this, quiet pools can easily be constructed to any extent the conditions will permit. If it is not possible to use the stream itself as part of the water garden, sometimes the water from it can be diverted or conveyed by underground pipes to a suitable site for such a garden. In any case select as low-lying a place as possible, a natural depression if one can be found, where one can stand above the water and look down upon the plants. Water so placed that there are lower parts of the garden all around it looks incongruous and out of place. Unless one is making a pool or tank in a sunken, or an enclosed formal garden where it should be rectangular to conform to the other lines of the spot, every care should be made to prevent any artificiality in the appearance of the outline. Regular curves of circles and ovals are utterly out of place and look ridiculous in a landscape with irregular and natural features. In order to be effective, the outline of a piece of water must not only be irregular, but it must also be in accordance with the laws of Nature, and, as in most cases, the natural pond or lake is merely an expanded stream or river, we must look to the shore lines of the latter for guidance in the formation of artificial ponds.

In a natural stream the curves are mostly due to the water meeting with some obstacle which causes a deviation in its course. We find invariably that where a promontory, a projecting rock, or some other interference causes an alteration in the course of the water, the latter is thrown against the opposite side with greater force, and unless the ground is very hard a portion of it is washed by the impact and an extended recess is the natural result.

In the same way artificially constructed pieces of water to look natural should have the largest and the boldest recesses opposite, or nearly opposite, the largest promontory on the other side. The shore line should not terminate abruptly but should form a slope continuing below the water level.

Even when a constant stream flows through an estate the opportunity for water gardening is not always made the best, or any use of. One of the worst cases that has come under my observation was upon an estate where the grounds sloped down to a meandering stream which had naturally widened itself out to a limited extent into bays and still pools, altogether ideal conditions for water gardening were presented. But the treatment of it consisted in building a wall all along the margins; making a snake-like gravel walk along the stream about ten feet away from it; at intervals on both sides of this walk, round- and oval-shaped beds were cut in the lawn, filled every Summer with bedding plants. So far as the water

itself was concerned a good collection of water lilies had been brought together, which having seen, the first desire of any one with a modicum of good taste would be to get away from it as quickly as possible.

Outside the boundaries of this estate along the same stream, Nature had provided a splendid object lesson on the principles of how to water garden. The native species of water lilies are there, and the margins are delightfully covered with a multitude of worth-while plants, with a complement of small trees and shrubs. Altogether this water garden of Nature's is a spot where one can spend hours, leave with regret and the hope to again have the opportunity of revisiting it.

It is, of course, obvious that we can increase the natural opportunities which a stream gives us. If there are no bays of still water, these can generally be formed with little trouble. Sometimes the height of the banks and the contours are such that nothing more is required but a small dam to raise the height of the water a couple of feet or so.

The general treatment of the surroundings of water depend somewhat upon the conditions which exist. The margin should be laid out to conform to natural surroundings, and if the environment is not harmonious it should be made so. An occasional tree or two and some shrubs to break the sky-line, and to throw reflections of light and shade into the water, are advisable.

Water margins can be developed in numberless ways, weaving all sorts of plants suitable to wet and moist conditions into multitudes of variations.

In planting the shore of a piece of water, it is the ground which projects into the water which should be furnished with the largest and boldest growing plants. This is not only perfectly natural, but it also has the effect of partially concealing the bays. Water thus treated will appear larger than it really is, and a walk along the shore will reveal surprises at almost every step.

Regarding plants suitable for a water garden, it must be remembered that mainly three distinct conditions exist: we have deep water, shallow water, and the moist earth at the margins just above the water level. Unfortunately when water is bounded by masonry only plants which will grow actually in the water can be used and therefore three-fourths of water garden possibilities cannot be obtained.

It is very important to realize one's limitations when planting, especially the water itself. A piece of water covered entirely with vegetation has entirely lost its charm and is little better than a swamp.

A water garden must always have pieces of clear, open water, and one must regulate both the quantity and the species of the plants used so as to secure this end. A stretch of clear, still water always greatly increases the restful and quieting influences of rural scenery. Of course there is not room for much open water in a small artificial pool, but however small this may be there should always be a portion of it not covered by plants.

For deep water, water lilies of course take the first place. The depth of water, absolutely necessary for the growth of these subjects is not great, but consideration must be given to the depth to which water freezes. These plants are found growing naturally in as much as six or eight feet of water, and it is always best to have a few inches of unfrozen water above their roots in Winter.

The best time to plant water lilies is just before they start into growth, or about the second week of May in the latitude of New York, although success is not impossible if planted any time from April until September. Whatever the conditions as regards mud at the bottom of the water, it is well to prepare a compost made up of equal

parts of good fibrous loam and old cow manure. Wicker baskets, or boxes with plenty of holes in them not less than two inches in diameter, holding about half a bushel, should be half filled with the compost; put in the lilies spreading their roots out properly, nearly fill up with compost, adding half an inch of coarse sand to the surface and a few stones weighing two or three pounds each, and then sink into the water at the required spot. Water lilies should be planted from six to ten feet apart according to their habit of growth.

No praise given to water lilies has approached exaggeration even when confined to our native species, but the newer hybrids raised by Tricker in America and by Marliac in France, have greatly added to their characteristics, not the least valuable of which is the longer season of flowers which the hybrids give. In making a selection regard must be given to the extent of water to be planted; where the area is large enough to be capable of supporting plants by the hundreds the question presents no difficulties as they are all worth growing.

America has been highly favored in the matter of water lilies, it being the only country which has native white, pink, and yellow flowered kinds; and taking the country as a whole it is the only one which can have so rich and so continuous display from April until October in the open water without artificial heat.

It may be mentioned in passing that sometimes a method is arranged in connection with growing the more tender and night blooming species in artificial pools or tanks, of having warm water run in so that the temperature of the water in which the plants are growing never falls below the necessary degree of seventy.

The common term water lily is given to three distinct genera, *Nuphar*, *Nymphaea* and *Nelumbium*, nearly all the native species being classed under *Nuphar*. Among the latter *advena* is the strongest growing and should only be planted in good sized pieces of water and not nearer than twenty feet to any other species. There are some half a dozen other native species hardy north of New York. Among the *Nymphaea*, *odorata* is the best known and with its variety *rosca*, Cape Cod Water Lily, are among the hardiest. This species has been one of the parents of many of the hardy hybrids.

The *Nelumbiums* are stately plants, and are easily distinguished by having both their flowers and foliage growing at a considerable height out of the water and not on the surface. These plants when once established in congenial situations spread very rapidly, and for this reason should not be planted near anything else, or even at all in a small piece of water unless one desires it to be confined to these alone. It is well to give them a bay to themselves when possible.

The common name for *Nelumbium* is *lotus* and there are only two species in the world—unless there are undiscovered ones—the native *N. lutea* and the oriental *N. nucifera* of which there are several natural varieties. The latter has wrongly been called the Egyptian lotus, but *Nelumbium* is not native of Egypt, although it was cultivated there in Roman times, probably for food, as they are now in Japan. The Egyptian lotus is a *Nymphaea*. While the oriental species is perfectly hardy provided it always has unfrozen water above its roots, the native species should be included in a collection provided there is room, as it is the only yellow *Nelumbium* in the world. *Nelumbiums* should only be planted in Spring, and that after the tubers have shown signs of growth.

Those who have not seen the *Calla*, *Richardia ethiopica*, growing wild in its South African home may be unaware that it is an aquatic, and can be treated as a hardy water

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An Arnold Arboretum Plantsman's World Tour

WM. N. CRAIG

TWENTY-SEVEN months seems a long time to be away from home, but when over 100,000 miles are covered during that period, one gains the impression that the traveler must have been constantly on the move. And when it is remembered that the major part of this time was spent either in the southern hemisphere or in the equatorial regions of the world, where in many cases, somewhat slow and primitive means of locomotion exist, one must conclude that the lately completed journey of Ernest H. Wilson, noted plant collector and assistant director of the famed Arnold Arboretum of Boston, must have been a long and rather arduous one, although different from the several expeditions undertaken in western China for James Veitch and Sons of London, and the Arnold Arboretum.

Having gained valuable experience in successive expeditions undertaken in Formosa, Korea, Manchuria, western China, and Japan, during the course of which he added no less than 1193 species and varieties of woody plants, hundreds of which are proving most valuable garden plants, since their dissemination throughout the world's temperate zones, Mr. Wilson was well fitted to undertake his last world tour, not for the purpose of collecting seeds and plants, but to secure dried specimens for herbarium uses of many plants doomed ere long to extinction owing to the progress of civilization; to get in touch with correspondents of the Arnold Arboretum in various parts of the world; to establish means of mutual help with collectors and authorities; to effect exchanges with institutions and collections to the end that the herbarium of the Arnold Arboretum shall possess specimens of every woody plant on earth.

Leaving Boston on July 8, 1920, Mr. Wilson first went to England and crossing to France, sailed from Toulon for Freemantle in western Australia, by way of the Suez Canal and Ceylon. After touring western Australia he took the transcontinental train for Adelaide in southern Australia, and thence to Melbourne and Sydney. Next he sailed for New Zealand and arriving at Auckland, toured the length and breadth of that country by train or motor car. From New Zealand he went to Tasmania, and after a short stay there, returned to Melbourne, and from there to Brisbane in Queensland.

Next Mr. Wilson went by steamer to Thursday Island and Port Darwin in northern Australia; sailing from there for Java, and having crossed that wonderful tropical island, went to Singapore, Penang and the Federated Malay States, staying over at the capitol, the new city of Kuala-Lumpur. From Penang he sailed for Calcutta, calling en route at Rangoon in Burma. From Calcutta, he went through northern India via Lucknow by way of Dehra and Simla to Rawalpindi; thence to Kashmir, returning to Calcutta by way of Lahore, Delhi, Agra and Cawnpore. Again leaving Calcutta he went to Sikkim and Assam, and later went south from Calcutta to Ceylon via Madras, returning by the west coast of India to the Nilgiri Hills, thence to Bangalore and Bombay.

Africa yet remained to be conquered. Sailing from Bombay, Mombasa on the east coast of Africa was reached, and from there, Mr. Wilson went into the equatorial regions by way of Uganda to the sources of the Nile and the Uvira Mountain country. Returning to Mombasa, he took ship to Beira in Portuguese East Africa; thence to Zanzibar and Dares Salaam. From Beira train was taken through southern Rhodesia and to the Victoria Falls on

the Zambesi, falls twice as high as Niagara and carrying about the same volume of water; next southward by train to Pretoria, the Transvaal capital; thence east and south through Bloemfontein to Port Elizabeth and through Cape Colony to Cape Town. From Cape Town, steamer was taken to England and later from England to the United States which was reached August 24, 1922.

Everywhere the traveler received a warm welcome, the very name of the Arnold Arboretum seemed to procure for him special attention, for news of his coming had preceded him.

Australia Mr. Wilson described as a vast and lonely continent, possessing great resources but rigidly limited in its development by lack of labor, which the Labor parties there will not admit. Much of Australia is potential cotton country. Western Australia resembles California and our arid West. New Zealand like Oregon and Washington is green, fruitful and beautiful, while Queensland, one of the best Australian states, although given to extreme labor policies, is tropical or sub-tropical. Western Australia is mainly a grazing country while southern Australia is a great grain-producing region.

In Queensland, much of the world's cotton could be produced but for the labor shortage. The whites will not tolerate the admission of the yellow or black races. The white man says he will do all the work, but he cannot do so. He succeeds for a time but eventually production fails. So with the white woman. In such a warm climate she cannot successfully perform all the household tasks falling upon her and at the same time, produce healthy children. The white race seems to be writing its own death warrant in refusing to have the assistance of the black and yellow races.

The happiest and most contented people in the world are the New Zealanders. Their beautiful and rich country produces about everything desirable in climate and crops, and here while no one is very rich, there are no poor. Their labor rule is much less fanatical than in some of the Australian states.

Australian trees are rich but strange. The *Eucalyptus* is the characteristic and predominant tree. Western Australia has the "grass tree" or "black boy," a tree with a frowzy top, somewhat resembling a palm in the descending masses of grass at the top and waist. Wood of the jarra tree, *Eucalyptus marginatus*, is specially valuable as the wood makes splendid paving blocks. The Karri or "marble trunk" sometimes reaches the height of three hundred feet, standing in great columned rows with a limitless carpet of bracken. The interior of Australia is an arid region and in a large measure treeless.

Amongst the exotic pests troubling Australia is the American prickly pear, or *Opuntia* which shows a disposition to take entire possession of the grazing lands, and which seems impossible of eradication. In New Zealand blackberries overrun fields and meadows, while water cresses choke ponds and streams. The rabbit pest continues unabated, but an enormous number are killed annually and exported in a frozen state.

The African baobab tree occurs in northern Australia. In Queensland a curious vegetable feature is the bottle tree, *Brachychiton rupestris*, which not only looks like a vast bottle standing on the ground but also yields drinkable water when tapped like a maple tree. The baobab while huge and imposing possesses wood which is almost

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SCENTED MUSK

COINCIDENT with my note appearing on page 234 of the GARDENERS' CHRONICLE, comes a letter from my friend, J. M. Bridgeford. He says that a few years ago he discovered in a Devonshire cottage window one or two plants of the true scented musk and he persuaded the owner to let him have one. For some time it did yield scented progeny but the perfume is now entirely gone. He add, "I wish we could place our hands on a little of the good old type." Now, *Florum Amator*, it's a case of dig in and find that scented musk. T. A. WESTON.

Florum Amator has no reply to make to the frenzied ejaculations with which T. A. Weston opens the continuance of his discussion on Scented Musk, in the August issue of the CHRONICLE, for *Florum Amator* is not strong in that style of argument. He is, however, willing to discuss the subject in a scientific way, basing his argument on an array of facts and leaving out all personal experiences, against which courtesy always forbids a man to argue, and all personal references to friends, and disparaging remarks about Yankee seedsmen, a class of merchants of high business character, we think.

The real question at issue is this, was there ever a plant named *Mimulus moschatos*, which was musk scented, which is now extinct, or which is still extant but has lost its musk scent. That this plant has become extinct in a certain country, England for instance, is possible, but not probable, but that plants of *Mimulus moschatos* which were once musk scented in their native habitat or in cultivation, have lost their scent, we think highly improbable and, indeed, hardly possible.

It is customary to reason from analogy. The several species of Pelargoniums, namely, *P. capitalum*, the rose; *P. graveolens*, the lemon-scented; *P. vitifolium*, the balm-scented; *P. tomentosum*, the pennyroyal; *P. gratum*, the citron-scented; *P. odorata*, the apple-scented, were all scented when introduced, some of them one or more centuries ago, we are told, and they are scented now. Passing from the scented Pelargoniums to plants of other genera, we know that the *Aloysia citriodora*, lemon-scented verbena, introduced in 1784, is lemon-scented now just as it was in our boyhood. The same is true of *Hedeoma pulegioides*, American pennyroyal; *Mentha pulegium*, the true pennyroyal of Europe; *Mentha piperita*, peppermint, and *M. viridis*, spearmint. Leaving the plants having a scented foliage and turning to those which had sweet-scented flowers years ago, we find them with sweet-scented flowers now, e. g., *Nympha odorata*, the water lily; *Heimerocallis aya*, the lemon-scented day lily; *Polyanthus tuberosa*, the tuberose; *Citrus sinensis*, the orange, and *Philadelphus coronarius*, the mock orange. We might easily add to this brief list of plants with scented foliage or with scented flowers, which were scented as far back as the records go and are scented now, but we think that this is sufficient to give force to our argument that if there ever was a *Mimulus moschatos* or a variety of it, that was musk-scented, that same species, or a variety of it, is musk-scented now. If, on the other hand, there was a species or variety of *Mimulus* which was not musk-scented years ago, which by carelessness or error has been propagated instead of the musk-scented variety of *Mimulus*, and has largely taken its place, that species or variety is probably without a musk scent now.

We may be mistaken in this matter; we do not belong to the very sure class of men who never will admit that they are wrong. We would be pleased, however, to have T. A. Weston submit a list of moderate length of plants which years ago had scented foliage, or scented flowers,

but whose foliage or flowers are now scentless, in support of his contention that a plant, e. g., *Mimulus moschatos*, was once scented but is now without scent. May I suggest that in this discussion of a subject which is very interesting, at least to *Florum Amator*, that we leave out all personalities and personal experiences, and any flings at either American or British seedsmen, for both of whom we have great respect, and simply present facts? *Florum Amator* does not care to continue the discussion about *Mimulus moschatos* in any bitter or unfriendly manner, and as he has said before, admits that he may be wrong in his conclusions. If so, he is ready to be convinced of his error by an array of facts.

FLORUM AMATOR.

I notice on page 234 of your valued paper that T. A. Weston has not seen the musk plant, either cultivated or wild. If he would take the trouble to call at our place, I would be pleased to show him a number of plants growing vigorously in the greenhouse and will also show him a plant in Orange which has astonished me by wintering through last Winter, so that he can see at one time both a cultivated and a so-called wild specimen.

W. A. MANDA.

Let me join in the "scented musk discussion." I have nothing to say about musk from seed, but I remember it in England growing naturally in the garden, and when grandmother wanted a pot to keep in the house, we just dug up some of the creeping stems, filled the pot with soil, laid on the rhizomes, and covered with soil. When I was on the F. W. Vanderbilt place, Hyde Park, N. Y., nearly twenty years ago, scented *Mimulus moschatos* was growing naturally in one of the shrubbery beds, and if it has not since been eradicated, it is probably growing there yet.

ROBERT BARTON.

WATER GARDENING

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plant. In Britain great success has been achieved with it in water as deep as two feet and in which the plant increases with great rapidity. The fact that it does well in that depth of water opens possibilities of using it in climates having colder Winters than prevail in Britain, so long as an inch or two of unfrozen water remains over its crowns.

As a rule the best materials for water gardening are those of our own country, although there are some species which have been growing here so long that they may be looked upon as citizens. Notably among the latter is the Japanese Iris, *Iris laevigata*, which is common in our flower gardens, but all its fine characteristics are increased to a remarkable degree when grown as a sub-aquatic; there are also several species of native Iris which have their habitat in swampy places.

Of all situations we have to deal with in beautifying home surroundings, we have the clearest guidance from Nature in the material which is best to use for the water side. However good in form and right in every way in relation to the landscape a piece of water may be, it is quite easy to spoil the effect of it all by the use of material, especially in the way of shrubs and trees, which has not the form and characteristics of those native to the situation.

With this, as well as with other special gardens, it is advisable for those who have not had opportunities of gaining experience to obtain the advice of an expert, both in relation to the formation of the piece of water, as well as in the selection of plants to use.

Ornamental Flowering Trees and Shrubs

CAMILLO SCHNEIDER, in the Magazine *Gartenschoenheit*, Berlin

(Continued from August Issue)

JUNE-BERRIES (*Amelanchier*) and Choke-berries (*Aronia*.) In our European woodlands there is no blossoming shrub or tree that in May can vie with the June-berries of the United States. At this time, in the eastern States, there blooms before all others *Amelanchier canadensis* (*A. Botryapium*) and *A. laevis* (*A. canadensis* of the gardens); the last is immediately recognized by its broad and almost horizontal branching. It is particularly beautiful at the time of blossoming, with its pendant flower racemes and purple young leaves. But the genuine, almost perpendicularly branching *canadensis* has its great charms, as the blossoms, which appear before the leaves, are in thick nodding inflorescences covered with silky hairs. When in the thin woodlands *Cornus florida* also shows itself at the same time in its blinding white splendor, one can scarcely think of anything more surprising or impressive. How enchantedly did my eye look upon the May landscapes when I journeyed in 1919 from Washington to New York, after I had already stood in astonishment before many a shrub of these Spring blossoms in the vicinity of Washington.

Accordingly the *Amelanchiers* deserve more than any other woody shrubs to be naturalized in our country. Their native representatives, *A. rotundifolia* or *vulgaris*, with which I became intimately acquainted upon my excursions in the hill country south of Vienna, makes a much smaller appeal. Somewhat taller shrubs than ours are the American *A. sanguinea* and *A. ovalis*, both of which pass usually as *spicata*, the latter, with its erect berries, especially deserves this name and merits the greatest esteem.

Deserving of quite cordial recommendation is the chokeberry, or *Aronia*, which is generally classed with *Sorbus* or *Pyrus*. I still remember clearly the vivid impression which *A. arbutifolia* made upon me in the nineties in the Greifswalder Botanical Gardens when the purple orange of its autumnal foliage was glowing. The splendor of its coloring attracted me to my first attempt at writing for publication. No less charming is *A. melanocarpa* and *A. atropurpurea*, likewise native to eastern North America. The most beautiful of all, however, is *arbutifolia*, which holds its attractive red fruit far into Winter, while that of *melanocarpa* ripens as early as August and soon drops.

The family of fruits with pits or *Pomaceæ*, to which the apples and pears, as well as the genuses named last, belong, is not at all exhausted by the enumeration of these types. I make quick mention only of the quince, *Cydonia*, of the Japanese Pseudo-quince, *Chanomeles*, of flame red, which merits wider dissemination because of its fruits. *Pseudocydonia chinensis*, the Chinese quince, whose pink flowers are not too striking, but have a wonderful fragrance, and whose stems have bark that peels off like that of the plane trees, should come into consideration for warm sites.

An additional genus, large and rich in form, whose sorts for the most part, however, bloom late in the Spring or even in the Summer is that of the Mountain Ashes and Alders: *Sorbus*. They deserve, like the thorns, *Crataegus*, and the rock sprays, *Cotoneaster*, a detailed account for their many kinds and forms play a great role in the gardens, not only at the time of bloom, but also in the case of many, at the time of fruiting in late Summer and in Autumn.

For the present only brief reference can be made to

them. Among the mountain ashes, *Sorbus aucuparia*, the most noteworthy to me are the north Chinese *S. puhuashanensis* and *S. discolor* (*S. pekurensis*) but *S. splendida* also, a cross of the native *S. aucuparia* and *S. Americana*, merits its name. Our mountain ash with *S. aria*, has yielded the beautiful *S. hybrida* or *S. quercifolia* in which the variation of the leaf structure of mountain ashes so markedly expresses itself. Of the Asiatic group I have always prized *S. hostii* the most, which far excels both its parents, *S. Chamemespilus* and *S. Mongestii* in neatness. Very rich in bloom is the interesting east Asiatic *S. (Micromcles) alnifolia* also.

Among the thorns, *Crataegus*, we treasure in the gardens perhaps above all others the red and pink forms of the native *C. monogyna*. The darkest colored is known as Paul's New Scarlet, or *kermesimo-plena*. What a handsome effect these thorns make I have often realized in the wonderful Place of the Prison in Dresden, for which, to be sure, one might wish a still more pleasant garden arrangement. A still larger number of *Crataegus* are of importance as Spring bloomers, and in the first rank are the east Asiatic *C. chlorosarca*, *C. dahurica*, *C. korolkowii* and *C. sanguinea*. Among the hundreds of North American species we must first determine upon a selection suitable for us.

Very manifold are the rock sprays, *Cotoneaster*. As rich and handsome sorts from China and eastern Asia, I learned to know in the Arnold Arboretum *C. luehensis* and *C. multiflora* var. *calocarpa*. I believe that these two are not equaled at their period of blooming by any other sort, to say nothing of their being surpassed. At the same time the latter is especially of extraordinary beauty when decorated with its vividly colored fruit and bears its name quite properly. But the charms of the blossoms of the types having smaller stature, like *adpressa*, *Dammeri* or *horizontalis* are not to be valued too little.

In conclusion, let me add a few words further about the adaptability of these beautiful flowering trees and shrubs in our parks and home grounds. They are still all too uncommon, and in only a few cases have I seen, up to the present time, the attempt to allow them their full effect. For this a particular effort ought to be made in our public parks which could make an essential gain in attractiveness thereby. There is, of course, needed along with this a certain education on the part of the visitors so that they do not wantonly break off the beautiful branches of blossoms, as too often, alas, happens even still in fruit orchards. We must acquire for these wonderful flowers the reverence of the Orientals. The sight of them must not arouse in us only an individual and selfish desire to possess; it must free in us a feeling of pure enjoyment, of devoted rapture. We must find in them works of art, before which we stand in admiration and full of inner feelings.

Let the cherries and the apples be introduced into our public parks, but not as detached specimens or in small scattered groups. No! in large, animated groups which at the time of blossoming would draw thousands, as they do in Japan, and as I saw was the case in the Arnold Arboretum also. There no one hindered the visitors from stepping upon the grass in order to look at them more closely. People reclined in the Spring sunshine around the blossoming trees and the impression upon the visitors was so deep that only seldomly a froward hand thoughtlessly

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The Source of Plant Food

WILLARD N. CLUTE

IT is a difficult matter to convince the average individual that plants do not take their food out of the ground. Everywhere he sees vegetation rooted in the soil and naturally infers that this is the source of their nourishment. Moreover, it is a matter of common knowledge that plants absorb from the soil, for if water be withheld from any plant for a sufficient time, it invariably withers and dies. It is, of course, true that plants absorb water and mineral matter from the earth, but these are not foods in the generally accepted meaning of the word, though water or the elements of which it is composed form part of all food. Water must be combined with other elements before it becomes food, however.

Ordinarily foods are classed as carbohydrates, fats or oils, and proteins. Probably the commonest are the carbohydrates, represented by such substances as sugar, starch, wood or cellulose, and inulin. If the water is completely driven out of any of these, as in the process of making charcoal from wood, a black substance known as carbon is left. This is derived by plants, not from the soil, but from the air. This carbon exists in the air in very minute quantities combined with oxygen in the form of carbon dioxide. In ordinary air there are only about three parts of this gas in ten thousand and yet from such minute quantities, all the food in the world is built up.

Not only are the water and carbon dioxide the basic material from which food is made, but plants are the only organisms in existence that can tear the elements in these substances apart and re-combine them in the form of food. The plant world, therefore, carries the animal world with it as a sort of pensioner on its bounty. If all the plants should perish, the animals would soon follow them from sheer inability to get food.

The whole problem of animal and plant nutrition is bound up with the problem of securing energy. A small part of our food is used in growth and repair, but the major part is used in securing energy with which we move in carrying out a vast number of activities. This energy was stored originally in the food by plants, and the best that animals can do is to break down the food already formed and use the energy. Plants alone are able to accumulate and fix new supplies of energy.

All day long the sun showers down on the earth various forms of energy. Heat, light, electrical and chemical rays fall upon the plants, and the latter, by means of certain green bodies in the cells known as chloroplasts, stop and use certain of these rays. The heat rays seem most important in promoting or hastening various life processes in the plants, and only the light rays are sources of energy. It is well known that ordinary daylight is made up of at least seven colors and that these are sorted out in various ways to give the color effects that we see. An apple, for instance, looks red because it reflects the red rays and absorbs the others. Plants are green, therefore, not because they use green rays, but because they reflect them. The fact that plants are green is of no advantage to them; it simply indicates that in the green parts some of the light rays are being stopped. This explains the almost universal color of plants and the further fact that all independent plants invariably seek the light. Plants that are not green are unable to make use of the light rays and consequently are unable to secure energy from this source and are obliged to depend upon food made by other organisms, just as animals do.

In the plant the light rays are turned to a form of energy, similar to, or identical with, electrical energy, and

by means of this the carbon dioxide and water are combined to form starches and sugars. In making this combination a certain amount of oxygen is left over and this is generally given off to the air, which probably accounts for the idea generally held that plants breathe out what animals breathe in. In the process of respiration, commonly called breathing, plants behave exactly like animals, taking in oxygen and giving out carbon dioxide.

The reason the process of respiration in animals and plants is confused is that in food making, plants have a second process, known as photosynthesis, which animals do not have, and which is exactly the reverse of respiration, in fact this is no other than the process of food-making which we have been discussing. Photosynthesis, however, is so much more active than respiration in plants that it usually masks respiration and thus contributes to the idea that it is the only process.

There are only about ten chemical elements required by plants and only three of these, are concerned in food making and the storage and release of energy. Since these three are found in the carbon dioxide of the air and the soil water the farmer sometimes expresses it by saying that his crops are made of wind and water. It is well known, however, that sterile soils will not grow crops and that fertilizers must be added to most soils in order that plants will thrive. The fertilizers, of course, contain the other elements that are absolutely necessary to the well-being of the plants. Some of these are concerned in the ripening of wood and fruit, others are necessary in forming chlorophyll, still others neutralize acids, promote plant processes or contribute to the building up of the living substance or protoplasm. But the securing of energy and the locking it up until needed in the form of wood, coal, oil and food, is almost entirely a matter of wind, water and sunlight.

ORNAMENTAL FLOWERING TREES AND SHRUBS

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broke off branches. The effect is the stronger in proportion as we plant larger groups of one sort and thus, according to the time of bloom, we can create changing Springtime pictures at different points of large public parks. For this purpose quite particularly there should be recommended the ornamental apples mentioned above, which, with their crops of fruit, give additional charm. This is true of the rock sprays also, and of the Aronias, whose Autumnal splendor makes them all the more valuable.

In small gardens we do not require the effect of massing. Here we can lend ourselves entirely to specimen plants and can bring quite close to us the many blooming types. A place may be found in even the smallest garden for the low growing *Malus Sargentii*, *Prunus japonica*, *P. humilis* and *P. triloba*, *Amelanchier spicata*, all Aronias, *Chenomeles* and *Cotoneaster hupehensis*. In gardens of medium size let us plant the double flowering Japanese ornamental cherries, the wonderfully beautiful *Malus Halliana Parkmanii*, *M. ioensis fl. pl.*, *M. Sieboldi*, *M. thersifera*, *Cotoneaster multiflora calocarpa* and yet many others of the kinds mentioned, each one of which produces a lovely sight by itself. He who once begins to make friends of all these forms will thereafter always more zealously strive to help introduce them everywhere.—F. B. M.

The Greenhouse, Month to Month

GEORGE F. STEWART

THIS month the chrysanthemums will be the chief attractions. They will be flowering profusely from the last of October until the middle of November. Of course, some early varieties will have gone by, and late varieties will straggle along until the first of the year. It is interesting to note the great change that has taken place toward the chrysanthemum around Boston. Fifteen to thirty years ago, the fashion was for large blooms, and enormous specimen plants. Of late years, on many private estates there has been a distinct reaction, and smaller plants without disbudding are called for. Also one will see on some places, three stems run up in a seven- or eight-inch pot, three to four feet, according to the variety, and then a spray of flowers on each stem. These plants are very effective for using in high windows in the house, and are just as useful for cutting for vases. They also appear more natural than the enormous single flower, which as one lady said to me, reminded her of a floor mop. I believe, however, that in certain positions a vase of large bloom are very effective, and show the grower's skill. In our exhibitions here in Boston of late years, there has been very few large specimen plants exhibited, and very few large blooms in vases. Some very effective groups, however, have been put up, arranged with other plants. The greenhouse man's aim should be to suit the taste and ideas of his employer.

This is a good time to weed out undesirable varieties. There may be shades of color that do not appeal to the family and some of the newer varieties may be considered better than the older ones. While they are in flower, it is better to take note of these things and know what and how many of a given variety may be grown another season.

Careful watering of chrysanthemums must be done as the flower begins to open. By the afternoon the floors should be dry and a nice dry atmosphere maintained over night. The earlier flowering varieties may be moved away from the later ones, if they are grown in pots, when syringings may be given them to keep red spider in check. We have seen this destructive little insect destroy the later flowers, before they were ready to cut, when they were planted out on a bench carelessly among the early flowering ones.

In the cool greenhouse more careful watering must be done among the hard wood plants as the day shortens. If there is anything that these plants will not stand it is careless watering. It is no use in putting any man who has no love for these plants to look after them, and he must likewise have had experience among them. It may be that, because of these exacting requirements, so few of these once popular plants are seen around nowadays. I refer especially to such plants as *Bauera*, *Pimelea*, *Eriostemon*, *Luculia gratissima*, *Daphne*, Heaths, etc. Every gardener ought to familiarize himself with the culture of these plants as there are none that are handsomer when they are well grown. Many of our young men need training as to their requirements, and it is up to the older generation to see that they are taught.

Any cyclamen plants that are to be kept for late work in March, may be given their final shift this month, and brought along in a cool house avoiding draughts. A good compost is one part nice fibery loam; one part flakey

leaves, preferably oak or beech; a little dried cow manure; enough sharp sand to keep the soil porous; also a sprinkling of broken charcoal. Fumigate at least once a week with some of the tobacco remedies. Hydrocyanic gas may be used by an experienced person. We have found that it is cheaper, more effective, and does not need to be done as often as with the nicotine remedies.

Primula obconica can be had in several shades of color. Many object to the magenta shades, but the whites and blues are fine. Some cannot handle this plant without getting poisoned. Personally, I cannot touch it. I can well remember, as a young man about thirty years ago, a very unreasonable gardener whom I worked under, insisted that I handle it. My hands and arms were a sight. Everyone should be warned about this danger, especially if used for house decoration. These plants may get their final potting this month, using a good rich loam. All primulas can be kept in cold frames for quite a while yet, if the frames are well built. The greenhouse is likely to be crowded until the chrysanthemum season is over. A mat over the glass will generally keep out all frost until well into November.

Some of the larger hybrid calceolarias ought to be fit for nine-inch pots in early November; that is, if they were sown in April and moved right along. Keep them in the coolest house and as close to the glass as possible. The finest specimens I have ever seen, were all the time, from first of October until they threw up their flower stems, kept so close to the glass that one could merely pass the open hand between the glass and the plant. Of course, they had to be lowered gradually as they grew.

Fuchsias that are intended for what we call half specimens, in nine- and ten-inch pots next May, should be in five-inch pots in early November if they are doing well. Pinch and shape them as advised in an earlier article, and keep them in a night temperature around fifty-five degrees.

Annuals such as *Calendula*, *Dimorphotheca*, lupines, snapdragons, stocks, that are wanted for Winter flowering, must not be allowed to get into a starved condition. If they are grown in pots, move them along until the desired size is reached. If they are to be planted out on a bench, say after chrysanthemums, it is better to give them a small shift rather than that they should suffer. We have sometimes kept up the vigor by knocking them out of the small pots and setting them in flats. Sprinkle a very thin layer of rich loam over the bottom of each flat before setting the plants in them. We have kept them this way in good condition from two to three weeks.

Carnations that have been bench-grown will now be giving fine flower stems, and the bench will be full of roots. See that a little stimulation is given occasionally. We have used Clay's fertilizer successfully, and sheep manure scattered over the surface of the bench for a change. A friend of mine, who is a very fine grower, tells me he uses tankage in slight applications with success.

As the days shorten, the rosehouse needs careful watching as regards air and moisture. Over night have all moisture dried off the leaves after syringing and the floors dry also. Keep the soil on the bench in a fairly moist condition at all times. Experience has taught me,

under our conditions, that we have less black spot to contend with by keeping the soil around the plants on the moist side, rather than on the dry side.

To those who have plenty of bench space, vegetables may be grown from November on. Beans, carrots, beets, New Zealand spinach, lettuce, etc. are always acceptable in a young tender state. They can be grown successfully in a night temperature around sixty degrees with a ten to fifteen degrees rise during the day. Lettuce will do better in a lower temperature. Tomatoes, of course, are always acceptable if one gets a good forcing variety and careful cultivation is practiced.

Now is the time to begin fighting mealy bug on the grape vines, and scale insect on the fruit trees indoors. In my opinion there is nothing better than Hydrocyanic gas. There is a nice little booklet that can be had from the Roessler & Hasslacher Chemical Co., Perth Amboy, N. J., telling in an up-to-date manner how to use it. They also supply cyanide in one ounce egg-shaped pieces which are most convenient. If the gas is used according to directions in the booklet, every two weeks while the fruit trees and vines are dormant, there will be very little trouble in the growing season with bugs and scale. If, however, they have been badly infected over a period of years, one season will not eradicate them. Also after we have them clean, we still keep it up, for although we see no signs of these insects, prevention is better than

cure. I have used this gas for a great number of years, (in fact, ever since it began to be known on this side of the Atlantic) on a great many different kinds of plants, and consider it one of the greatest time saving fumigants known to the greenhouse man. There are a number of plants which will get slightly injured with it, and one has to learn by experience what to eliminate from a greenhouse when using it. I would never think of using it on orchids, as everytime I attempted it they were injured. George Pring, of St. Louis, told me they can use it on these plants out there without injury to them. Atmospheric conditions may have a good deal to do with it.

Cattleyas *Bowringiana* and *labiata* are in sheath and pushing up their flowers. They have to be carefully watered, and we find after cutting the flowers of *C. labiata*, which should be done with a clean cut, it is better for some time to keep them in a rather dry atmosphere until the cut dries. After the flowers are cut, if kept in too moist a condition, the bulb of this cattleya is apt to rot. *Dendrobium Phalaenopsis Schroederianum* is also flowering. We find it does well in a temperature never lower than sixty degrees. It propagates readily. We got a small offset from a friend about seventeen years ago, and have raised eighteen plants from that one piece. The flowers are one of the most useful and decorative of the orchid family.

Work for the Month in the Garden

SAMUEL GOLDING

NOW that the majority of crops has been gathered in, there remains but a few weeks ere Winter makes its reappearance. However, much can be accomplished during open weather toward laying the foundation for next year's crops. The breaking up of new ground, digging and trenching; mixing the subsoil and incorporating some good farm yard manure. When this is well done it has a most important bearing on the success of the crops, as it provides for more depth and a more fertile rooting medium, which will help the various plants to withstand the heat and draught of Summer. Any subsoil brought to the surface will receive the mellowing influence of the Winter's frost. This work, if done now, will save valuable time when the Spring rush is here, for it will then need only raking and leveling to be ready for the reception of seeds or plants.

Complete the lifting of late potatoes and other roots, storing them away for Winter use. Make preparations for forcing asparagus, seakale, chicory and rhubarb; lift a few roots and keep them as cool as possible. They respond more readily when brought into heat, if they have been subjected to some frost. Cut over the asparagus bed, as soon as the stems are ripe, and fork in a good coating of manure, which will save time in the Spring.

If severe frost threatens, lift cauliflower and place close together in a fit, deep frame, or cool shed where it will keep for a considerable time. Lift late endive and lettuce and place in cold frames; failing this means of protection, use some salt hay or other material to cover them during frosty snaps.

Remove the bottom foliage from the Brussels sprouts to give the growing sprouts all light and sunshine during the brief growing season that remains. This is a vegetable whose importance and value is oftentimes overlooked during the days of plenty, before a killing frost takes

away the more tender. It requires a good season growth and will be much appreciated at this time. Clean up and burn all decaying foliage and vegetable matter.

Finish earthing up late celery, which should be done by the end of October or early in November, as we may experience severe frost. When well banked up it is quite safe. Make preparations for its removal to Winter quarters in November. If wintered outside, collect material for protection in case of an early emergency.

Make up Mushroom beds for Winter bearing. Late vegetables growing in frames will need careful attention, regarding the watering and ventilating. Have a supply of mats on hand for covering the sash on cold nights.

As soon as the Summer bedding has been cut down, begin preparations immediately for the Spring flowering bulbs. Get the tulips, hyacinths, narcissi, scillas planted when preparing the beds for their reception, avoid too heavy a coating of manure. If they were well manured in the Spring it should be sufficient.

If hardy Lilies are ordered from the dealer, arrange and prepare the location for planting them. Give the ground a dressing of leaf soil. In case of late delivery, cover the ground with some protection to prevent it from freezing up, so they can be planted as soon as they are received to prevent any shrivelling of the bulbs.

The Hardy Chrysanthemum continues gay throughout the month. The recent spell of warm weather has improved them. They should have some protection on cold nights. Lift dahlias, cannas, gladioli, and allow them to dry outside before storing. If ordinary wooden labels are used to label them, attach the labels to the tubers with a piece of wire.

When string is used, it oftentimes decays and causes confusion of names when they are brought out in the Spring. It is a good plan to store them crown downward, so that

any accumulated moisture can drain away through the stalk. If they are placed in a frost-proof cellar, they usually keep alright, but will need some attention. If placed in a cellar where there is a furnace, the dry atmosphere may cause the bulbs to shrivel. This can be prevented if some simple precaution is taken to guard against it, such as a light covering when shrivelling is detected.

If any alterations or rearrangements are to be done in the flower borders, it should be done in October, if possible, while some root action can be made. When November is here the soil loses heat, and the time is too short for the plant to become established. If, however, it cannot be accomplished before that time, it is best to postpone dividing and transplanting until the Spring.

Cut back somewhat the long and straggling growth of the hybrid teas and hybrid perpetual roses, which prevents some damage from winds and storms.

This is a good time to secure any stock of roses for Spring planting. They can be laid in and protected during the Winter, and will be on hand when wanted next season.

The clearing up of leaves will take up a lot of time these days, and they should be carefully stored away for making leaf soil, or for use in protecting rose beds or other subjects.

Keep the lawns trim until the growth ceases; after that, have the mowing machines thoroughly overhauled and put away in readiness for next year's work.

Plant deciduous trees and shrubs. Prepare holes for the reception of apple and pear trees so that they can be planted as soon as they are received from the nurseryman. Plant firmly and stake securely. A good mulch will be beneficial to the newly planted stuff and will protect the roots during Winter.

AN ARNOLD ARBORETUM PLANTSMAN'S WORLD TOUR

(Continued from page 289)

totally useless and is so soft that when the settlers made an attempt to get rid of one of the trees by cutting into it and introducing a heavy charge of dynamite which was exploded, the charge simply blew itself up through the tree as though it were so much water or air, leaving the tree still standing. There was not enough resistance in the pulp matter to give the explosive any hold.

In Java there are abundant tropical resources which a large and docile native population cares for, while coffee and cocoa are the leading products. Much rubber is also being grown, but the latter proves a mere bagatelle compared with what Mr. Wilson saw between Penang and Singapore in the Federated Malay States. For over seven hours, he rode at least three hundred miles through unbroken rubber plantations, and this illustrates the general tropical tendency of the substitution of cultivation for forest life and the consequent extermination of species.

Kashmir was found not less lovely than it is poetically reputed to be. Mr. Wilson was interested in visiting in the garden of Nazimbaugh across the lake from the capitol, Srinagar, the giant plane tree planted by the same Mogul emperor who built the famed Taj Mahal at Agra. This is none other than the oriental plane often seen in American parks. The famed Taj Mahal quite realized his highest expectations. In Assam he searched for that rare tree, the Khasya pine. At a point near Shillong, the capital of Assam, is the wettest place in the world with a rain fall of over six hundred fifty inches a year. In the Nilgiri Hills Mr. Wilson visited the sacred Bow tree, *Ficus religiosa*, under which Gautama Buddha sat when he received his revelation.

In Africa after passing through the big game country from Mombasa to Nairobi and reaching the Aberdare Mountains which are exactly under the equator but covered with perpetual snow, he slept one night at an altitude of 10,000 feet which while above the timber line was not up to the snow line. Mount Kenya, the loftiest of the range, reaches a height of 18,620 feet.

Much of the Kenya and Uganda region has a salubrious climate, is a "white man's country" and produces increasing quantities of cotton. There is also considerable ranching here and some Americans were among the ranchers. Many parts of Uganda are tropical. On Lake Victoria Nyanza, Mr. Wilson saw beautiful islands evidently once inhabited, and asking why no one lived there now, he was told that the sleeping sickness had killed every one.

On the equatorial mountains, Mr. Wilson found the great African juniper, *Juniperus procera* one hundred fifty feet high and twenty feet in circumference, a full brother of our common red cedar. The baobab or cream of tartar tree is abundant here; tree heaths are innumerable, and from these are made briar wood pipes; also tree lobelias of great altitudes and the famed "deadly upas tree," which by the way is not deadly at all and never was. It is as innocent of all detriment or offence as a rose bush or an apple tree. The carbon dioxide which settled in certain valleys and caused deaths among those who slept there, did not come from the upas tree. Under the sprays of the sublime Victoria Falls of the Zambesi, *Gladiolus primulinus* grows most luxuriantly, and with the unceasing clouds of mist this gladiolus appears to be continuously in flower.

The Monterey pine of California nearly extinct in America has been introduced in Cape Colony where it thrives most amazingly and promises to be of great economic value. The Monterey cypress also confined to a narrow strip in California has found favorable conditions for its development in Cape Colony. On the Lion's Head and spurs of Table Mountain is a most remarkable tree, survival of an earlier age in the world, the silver tree, *Leucodendron argenteum*, which is to be found nowhere else in the world. The silver tree while resembling no conifer, bears as its abundant fruit, cones each as big as a large tea cup. The cone is covered with seeds, each of which has on its top a fleecy arrangement of wings or "planes," more or less twisted or involuted like the blades of a ship's screw propeller. At the moment when in the process of ripening the seed is detached from the cone, the pod opens and the black seeds about as large as a pin, drop to the full length of a black cord about an inch long. The wings of the propeller now catch the wind and the "parachute" starts off on its aerial journey to be deposited at last where it is expected to germinate. It greatly surpasses in complexity and beauty the maple and linden, but alas, this marvelous contrivance goes for naught. The silver tree belongs to the banished geologic past. Newer growths have crowded it out and offer it apparently no chance whatever.

In Cape Colony are five hundred varieties of ericaceous plants; whole hillsides of *Erica melantheia* in four colors make wonderful pictures. Here *Amaryllis belladonna* abounds and blossoms better after severe fires have swept over the land. *Disa grandiflora* on the dripping cliffs of Table Mountain well earned the title of "the pride of Table Mountain." South Africa is a white man's country and the resources are enormous. In South Africa, as elsewhere, Mr. Wilson received a most cordial welcome, not only from forestry and conservation authorities, but from the government authorities who gave him every facility and paid him much honor. The fame of the Arnold Arboretum, its collections and resources, had gone before him.

Departments of Foreign Exchange and Book Reviews

ON "HARDENING PLANTS."

FEW garden practices are so universally followed by good gardeners or so little understood by anybody, as is the practice of hardening plants. Everyone who raises plants under glass knows that to transfer them directly in the early part of the year from the heat in which they are grown to the chances and changes of temperature in the open is to court failure. Gardeners also know that the hardening process is somewhat slow and that one or two days only in a cold frame does not suffice to harden young plants. Experiments carried out a few years ago by Mr. Harvey*, show in a most interesting manner that although the hardening process begins at once when plants are transferred from greenhouse to cold frame—in one day the plants acquire some measure of increased resistance to cold—yet at least five days elapse before the plants become really hard. Thus Cabbage, after five days' exposure to cold frame temperature—three degrees above freezing—were able to resist thirty minutes' exposure to 3 C., although the temperature froze them stiff and killed outright unhardened plants. He also showed what is of great interest to gardeners in this capricious climate, that hardened plants lose under warm conditions their hardness is about the same time as they acquire it. If, therefore, tempted by a genial spell of weather, the gardener puts out his hardened plants, and if that genial spell lasts long enough to make the plants soft again, they are almost as prone to damage as they would have been had they not been hardened at all. "More haste less speed," is the motto to observe in planting out. Physiologists who have investigated the effects of frost on plants have given us a good definition of hardness. It is the ability to survive ice formation within the tissues. Of our garden plants the tender ones do not possess this power, and we know of no means of making them acquire it. Some possess it, as it were, naturally; others, and they are the ones that interest us here, may acquire hardness. The Cabbage is an example of this last class, whereas the Tomato cannot be "taught" to resist a temperature below 5° Centigrade. The adept in gardening can tell by the appearance and still more by the "feel" of a plant, whether it has been well hardened. This is due to the fact that during the hardening process growth is checked and hence leaves and soft stems, instead of appearing sappy, have a stiffish appearance and are springy and elastic. They are smaller and thicker than are those of unhardened plants of equal age. Experiment has shown that hardening may be assisted in watering plants with solutions which check growth. Give them nitrates such as potassium or calcium nitrate and the plants' growth is stimulated. They become sappy and soft, but water them with a weak solution of common salt or washing soda (at the rate of about two oz. to the gallon) and their hardness is increased for the same reason that it increases in the cold frame, namely, because growth is checked. Withholding water is, of course, another means of aiding the hardening process. It follows from what has been said, that age is a factor to be taken into account. Young tissues, for example those of leaves, are more easily injured than are older tissues; a fact which has to be borne in mind in Autumn sowing and Autumn planting. There are apparent exceptions to this rule; for example, July sown Beet may be left in the ground, if the soil be not a very wet one, well into the Winter, by which time old roots would have perished. This, however, is to be attributed to the fact that the "root" of the mature Beet consists of tissues, the cells of which are on the down grade of life, they are, as it were, over-mature, and begin to show the reduced resistance of old age. Plants which are hardy in the sense in which the word is used here may show signs of "frost-bite," although they do not succumb to a hard frost. These signs—also exhibited by tender plants when grown in too low a temperature—take the form of spots on the leaves. These spots are at first translucent, owing to the fact that they represent areas in which the intercellular spaces, normally full of air, have become injected with water. Cell has been excreted from the neighboring cells as a result of the low temperature. Even hardy plants may show these frosted areas, but in their case the frost spots disappear, whereas in tender plants they become brown as the cells disintegrate. Some hardy plants, like the Cabbage, show curious "frost-bite" spots, called *arabes*. As Mr. Harvey has shown, such spots disappear in the course of a few days to an embossed area of a color lighter than that of the rest of the leaf. These

intumescences go on growing and may reach a large size, and a Cabbage leaf which has been exposed to and recovered from frost, may have its surface puckered and rolled in most fantastic shapes. This behavior may be likened to that often produced by mechanical injury and the formation of those intumescences must be referred to the plant's reaction to the wound-stimulus of frost. Bloom on the leaf often serves, as may be shown by observing different varieties of Cabbage, to prevent injury from frost. This, according to Mr. Harvey, is probably due to the waxy layer acting as a water-proof preventing communication between water on the outside of the leaf and that lining the cell walls and occurring in the cells. When frost comes, the water on the leaf-surface is cooled and in the absence of wax this cooling is transmitted to the water of the cell-walls and cells. As the process continues, this water is undercooled. It does not freeze, however, unless the ice crystals which form on the surface are in continuity with the water in the walls and cells. The bloom breaks the continuity and hence ice—which is the danger—forms less readily in a leaf with bloom than in one without it. There are numerous hypotheses as to the actual cause of death from freezing; the most probable is that as water escapes from the cells, the nitrogenous complex compounds (proteins) on which cell vitality depends are salted out, that is, precipitated, and that once this process has been set up, recovery is impossible, because the vital mechanism has been destroyed. Hardening on this hypothesis is due to a change in the composition of the proteins of the cell. During the process of hardening these substances give rise to other proteins of simpler construction which are less apt to be salted out, that is, thrown out of the vital mechanism.

It is common practice to spray plants which have been subjected to frost. The practice is a good one, but how it achieves the end is obscure. It was thought at one time that it caused a slower thawing and gave time to the cells which had lost water to recover it. In point of fact, spraying hastens the thawing process and it seems more probable that its good effect is due to transpiration being checked. Mr. Harvey has made a curious observation which lends some collateral support to this view. He finds that if the leaves of a frost-spotted Cabbage are submerged in water, the intumescences already described do not develop. Water appears, therefore, to arrest the pathological processes set up by frost and the recovery of a frosted leaf which has been sprayed must be included in the already long list of "water cures."—*The Gardeners' Chronicle* (British).

PLANT PESTS AND THEIR PREVENTION.

THE large amount of space in gardening papers devoted to plant pests and remedies for their extermination would seem to indicate that enemies to plant life are becoming a serious menace to horticulture. Assuming this to be a recognized fact it might not be amiss to try and find causes for this increasingly serious state of things. There are at the moment many capable men who are engaged in the praiseworthy task of finding remedies for the various troubles which constantly threaten with disaster the efforts of gardeners in the production of healthy fruits and vegetables. The plan adopted by these painstaking laborers is to work out the life-histories of the various fungi and insects which prey upon plants, and, having ascertained their weakest and most assailable parts, to provide weapons to overcome and subdue them. The scheme is a perfect one, and gardeners are indebted to them for their labors. But it seems to me, and it will appear equally clear to the reader, that gardeners and cultivators are very much to blame for the increased prevalence of plant foes, and it may be reasonable to suggest that they may do much to back up the efforts of the plant doctors by taking increased preventive measures.

The old saying, "Prevention is better than cure," has become so much of a platitude that it has lost much of its significance, but the truth of the saying is of such paramount importance to the gardener that he might well make it the leading maxim of his vocation. There are, of course, certain fungus diseases which occur in the form of epidemics, like the visitations of the dreaded Potato disease, while certain forms of aphid will develop to an alarming degree in time of drought. These attacks, so far as prevention is concerned, are more or less beyond the control of the cultivator, who must needs rely on the aid of the plant pathologist to successfully combat them. On the other hand, the increase of many plant diseases and pests might be considerably

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checked by the more careful conformation to natural laws on the part of the gardener.

Take the case of that common disease among young seedlings known as "damping off." Millions of tiny plants are lost annually on account of this virulent fungus pest. But I believe, and most gardeners will be ready to admit, that in ninety-nine cases out of a hundred the attacks might be averted by adopting common-sense methods of culture. The disease is primarily one which attacks plants grown under artificial conditions. As every gardener knows, it attacks seedlings under glass and is caused either by overcrowding, excessive moisture, or a close, vitiated atmosphere. Another cause not always recognized by gardeners is that of sowing seeds in soil which has previously contained diseased seedlings. The preventive precautions in regard to the first-named causes are obvious, while the importance of sterilizing affected soil is equally evident. The above is a concrete case of a more or less preventable disease, but it is typical of a host of others. The matter of contagion is one which is very often too little considered by gardeners. A single plant in a greenhouse which is attacked by green-fly is capable of ruining a houseful of plants and is too often allowed to do so. One mildewed plant is equally capable of inflicting damage, and frequently does so. These remarks seem so obviously true that it appears foolish to make them, but it is surprising what a large number of people will not take the necessary steps to isolate infected plants. The negligent gardener who fails to treat promptly the diseases which attack the fruit trees and crops in his garden is a menace to his neighbors. No conscientious grower, on however small a scale, will knowingly disregard the importance of checking diseases which might cause havoc to other people's crops. To take immediate steps for the eradication of injurious pests is a duty which belongs to every citizen. The matter of prevention is equally important, and the keynote of success may be briefly summed up in the words "good cultivation."

Apart from the more or less preventable causes of disease in cultivated plants, there are those which are probably due to what may be called "unnatural, common horticultural practices." In making a conscientious inquiry into the reasons for increased disease among plants, we cannot honestly shirk investigation into this side of the question. The practice of unduly forcing plants to produce flowers and fruit before the normal season is possibly responsible for the weakened constitution of many plants. This impaired vigor undoubtedly makes plants more susceptible to attack. Then, again, the continued propagation of plants by cuttings or buds may be another cause. Is it reasonable to suppose that the prolonged perpetuation of the same stock has anything to do with increased susceptibility to disease? The Potato is subject to something like seventeen different diseases, and few plants have been so subjected to vegetative reproduction.

Finally, it may not be amiss to inquire how far excessive plant breeding is responsible for increased plant sickness. I believe it is more or less allowed by most gardeners that those plants which have been the most subject to the work of the hybridist are the ones most prone to disease. It is a matter for speculation whether the high types of perfection seen in the so-called florists' flowers are to be paid for by an increased susceptibility to disease. The reckless crossing and intercrossing of many flowers has resulted in a diminution of seed production, and when we remember that the primary object of the flower is to perpetuate its species by means of seeds, we are brought face to face with the fact that we are hindering one of Nature's chief schemes for race perpetuity. To thwart Nature is to court disaster. We know this to be true in the case of the human body. In venturing the opinion that in our headlong race after abnormal types of flowers we are possibly depriving the generations yet unborn I do not attempt to dogmatize. My remarks on this head are suggestive only. I am content to leave the matter for consideration by wiser heads than mine.—*Gardening Illustrated*.

BOOK REVIEWS.

Text Book of Pomology by J. H. Gourley, M. S. The Macmillan Company, New York. Upon its nearly 400 pages, this well composed book presents the "experimental and investigational bases of fruit growing on the physiological side." It renders valuable service by having collected and put into convenient form for students who have already had considerable instruction in the schools much of the experimental material that has been accumulating. The selection of the material seems at every point to have been made wisely, so that the earnest student may draw his own practical conclusions from the results of most authoritative experiments with pruning, the thinning of fruit, orchard soils, cultural methods, fertilizers, the improvement of fruit, its storage, and several other problems less vital. The presentation is reinforced by many tables, eight clear illustrations and forty "figures."

The non-academic person, without true scientific bent, might complain that it is hard to find in this work definite and reliable conclusions. He might wish that the author had concisely given

his summary of the theories and experiments relating to each topic in the form which is used at the end of the chapter devoted to fertilizers and manures. But the careful reader finds expressed, in the body of the book, on every point, conclusions as definite as they discreetly can be, for different parts of the country and different conditions.—F. M. B.

Cyclopedia of Hardy Fruits by U. P. Hedrick, The Macmillan Company, New York. Even in the face of the "change from the growing of fruit for personal use and pleasure to the commercial orcharding which is taking place in America," it can be stated unqualifiedly that this volume ought to have wide circulation. Its accuracy of description and determination of synonyms are in fact invaluable. Only in a few cases has the author found it necessary to compile a description and his cautious compilation is always frankly marked. Yet the number of different hardy fruits treated is very large and none worthy of note for any part of the country seems to have been omitted. Even the less commonly used fruits, like the pawpaw and the barberries, have received adequate treatment. The at all serious faults of any variety are not unmentioned, though the effort in every case has been to give in detail full recognition to all qualities that are good in both plant and fruit. The 325 black and white figures help the verbal description as do the sixteen full page plates.—F. B. M.

THE MARKET NURSERY WORK SERIES, by F. J. Fletcher, F. R. H. S. Benn Brothers, Ltd., London.

The aim and the ideals of this series of six neat booklets, each of less than seventy-five pages, has been commented upon before in these columns. At that time the hope was expressed that the excellencies of the first two numbers would be matched by those of the succeeding. This hope has not been disappointed in the third volume, "Roses for Market," nor in the fourth, "Carnations and Pinks," nor in the fifth, "Orchard Fruit Culture." Anything else could hardly be expected from a man who during nearly fifty years of successful experience as a commercial nurseryman has been a progressive student also. He combines shrewd business methods with esthetic appraisement.

From these little books the American amateur as well as the professional gardener and nurseryman can derive much of value even though he may have good reason to doubt that "there are no roses (*i.e.*, rose plants) in the world equal to those grown in the United Kingdom." But the painstaking carefulness used by the English grower to make the production of plants most economical he might do well to read about as the English grower would do well to learn about budding on *multiflora* seedlings. National practices, habits and ideals of course vary considerably. Even the most devoted lover of pinks would hardly agree with the world's greatest poet in calling this "good old English flower" "the fairest of flowers." But in England it has much greater vogue than in America and there the carnation can be extensively grown out doors. Affection for the carnation and still more for the border pinks make it seemingly hard for the author to devote a chapter to the now deservedly popular *Dianthus Allwoodii*, which combines to a high degree the better qualities of its parents, the perpetual-flowering carnation and the old garden pink, some strains of which in England now flower through most of the Summer.

Volume V is an admirably condensed treatise sufficiently plain and complete to guide a skillful and patient gardener in making his own fruit-trees. It is particularly valuable for the attention paid to dwarf fruit-trees and to cordons, a subject to which, because of the comparative lack of area has been given much more attention in Europe than in America.—F. B. M.

Greatness of mind is not shown by admitting small things but by making small things great under its influence. He who can take no interest in what is small, will take false interest in what is great.—*Ruskin*.

OWNERS OF COUNTRY ESTATES

desiring to obtain the services of gardeners, thoroughly versed in all phases of their profession, and qualified to assume the responsibilities the position calls for, as superintendents or gardeners, should apply to the National Association of Gardeners, M. C. Ebel, Secretary, 286 Fifth Avenue, New York. The association numbers among its sustaining members, the owners of some of the foremost country estates in America.

The association makes no charge for any service it may render to employer or member.

(See page 300.)

Famous Massachusetts Estates Visited

DURING the gardeners' convention some of the numerous estates near Boston were visited, the predominating features of which are described.

clude all appearances of artificiality. Among the plants growing along the waterside is a cross between *Lobelia cardinalis* and the *L. siphilitica*, giving a flower of intermediate color.

The main garden, which one comes upon quickly after turning a border of shrubbery, is given over to perennials in variety. Mr. A. E. T. Rogers is the gardener in charge.

ESTATE OF RICHARD T. CRANE, JR.

Castle Hill Farm, the estate of Richard T. Crane, Jr., at Ipswich, is one of the largest and most famous estates in New England. It is much newer than many of the other places on the North Shore, and its development has been largely in the hands of Robert Cameron, ex-president of the National Association of Gardeners, and for many years superintendent of the Harvard Botanic Gardens in Cambridge.

This is a regal home, with a beautiful mansion at the top of a lofty knoll, and surrounded by 2,500 acres of rolling land which makes a gradual descent to the sea. The estate includes one of the best beaches on the North Shore, and an exceedingly charming stretch of



Guests at Mr. and Mrs. R. T. Crane, Jr., on their estate, Castle Hill Farm, of which Robert Cameron, president of the National Association of Gardeners, is superintendent.

ESTATE OF MRS. WILLIAM H. MOORE

There are many interesting features about the estate of Mrs. William H. Moore at Prides Crossing, but it is most noted for its willow walk. This walk is composed of willow trees which arch at the top, enclosing it completely except for the openings at each end and in the middle. The walk is about two hundred feet long, and is set with stepping stones arranged in irregular fashion. It extends along one side of the main garden and is as picturesque as it is unique. Another feature of this estate and one of even more interest to the experienced gardener is a combination rock and water garden set into a slope down which a winding walk leads to the garden of perennial plants. It is a very natural arrangement, an attempt being made to ex-



Conventionists passing through the gardens on the estate of Mrs. William H. Moore.



View of garden from one of several especially interesting gardens at Castle Hill Farm.

sand dunes. There is a wonderful vista from the mansion to the water, with trees on each side. At the present time the planting is bordered by Norway Poplars, which, however, are not making very good growth, and are being gradually replaced by evergreens. At one side of the house is an immense swimming pool, the water for which is supplied by a battery of pumps in a special building. These pumps also supply water for the entire estate. In addition there is an elaborate private lighting plant.

The planting around the house consists of hundreds of noble trees supplemented by sunken gardens and a large arboretum maze, which is in superb condition. This maze was a novelty to many of the visitors.

A formal garden reached by a series of stone steps from the house terrace is entirely enclosed and is planted to perennials. At



A group of the guests of Mr. and Mrs. Henry Hunnewell on their estate, renowned for its rose garden, collection of rhododendrons, and specimen trees and shrubs.

one end there is a fountain, and a large group of marble statues. Since Mr. Cameron came to the place he has greatly improved this end of the garden by the use of fastigate evergreens planted close against the wall. There is an elevated walk around the garden, with supports for tub plants.

Passing through a loggia at the further end one descends another flight of steps to the rose garden, which is planted almost entirely to teas and hybrid teas. This garden is also enclosed, but the trees and shrubs have been cut away so as to make a complete vista from the upper end of the formal garden through the rose garden and across the open country.



Inspecting the vegetable garden of Castle Hill Farm, some of the critics remarked on the unnaturalness of this garden as there was not a weed to be observed anywhere.

A short walk leads to the highest point of land on the estate, where an overlook has been established above a large reservoir where the water is stored.

One of the most interesting features to many of the visitors was the vegetable garden, which is unusually large and exceptionally well kept. Mr. Crane is greatly interested in a hospital in Ipswich, which was erected with funds furnished by him, and which he keeps supplied in large measure with vegetables from this garden.

There is a modern range of greenhouses on the place, a big storage house, and a set of buildings where the work horses and a herd of Guernsey cattle are kept. Mr. Cameron has a beautifully appointed house for his own occupancy, and there are modern buildings for the other employees who live on the estate.

ESTATE OF THOMAS E. PROCTOR

The visitors were unable to get anything like a comprehensive view of the Thomas E. Proctor estate at Topsfield, because of the limited amount of time given them. On this estate is a large and

remarkably complete arboretum, one of the finest private arboreta in the country. Here many new and rare trees and shrubs are to be found. All the specimens, too, are labeled as carefully and accurately as in a public park. Another feature of this estate which has made it widely known is a rock garden of large proportions. This garden surrounds a pond, making the setting unusually charming. It is filled with a comprehensive collection of Alpine plants. This estate also has a large range of greenhouses where James Marlborough, the very efficient superintendent, has gathered together the finest collection of Winter flowering begonias in this country, many of which have been seen at flower shows in Boston and other places.

ESTATE OF MRS. GARDNER M. LANE

Few mansions on the North Shore are more beautifully situated than that of Mrs. Gardner M. Lane at Manchester. Standing as it does on the top of a high bluff, it overlooks the sea for many miles at a particularly beautiful section of the coast line. The gardens, reached by a flower-bordered walk, are terraced. The uppermost garden is very formal in its character, with a large pool as a central feature. Descending a flight of steps one comes to the perennial garden, where are several plants not often seen, including *Gaura lindheimeri* and a form of *Cimicifuga* which none of the visitors could name. Another descent leads to the vegetable garden below, where are also the greenhouses. The rocks used in terracing this garden were not laid in cement, but the



A view from the vegetable garden of Castle Hill Farm showing the sand dunes and ocean in the distance; also a corner of the farm buildings.

cracks and crevices were filled with good loam to make a home for plants of many kinds. James Scott is in charge of this delightful estate.

HUNNEWELL ESTATE

Few private places in New England are better known than the Walter Hunnewell estate in Wellesley. This estate was established many years ago, and the Hunnewell family has taken unusual interest in horticultural matters of all kinds. They have been in particularly close association with the Arnold Arboretum, and with plant hunters, the result being that the grounds contain many of the finest and most valuable ornamental trees and shrubs to be found in any private collection. The evergreens are particularly noteworthy. This estate is famous for its rhododendrons and azaleas. It was here that hardy rhododendrons were first taken in hand for general planting, and here, too, a number of new azaleas have been originated. A particularly interesting feature is the topiary garden planted many years ago. It borders the lake, and is overlooked by an observatory. T. D. Hatfield, the superintendent, is known the country over as an authority on horticultural matters.

The H. S. Hunnewell estate comprises 650 acres, and is noted especially for its wonderful expanses of fine greensward. It also contains a large number of trees and a splendid rose garden. John G. Duguid is the superintendent.

ESTATE OF LARZ ANDERSON

Probably the Larz Anderson estate in Brookline an attractive spot of which is illustrated on the front cover, contains the
(Continued on page 301)

National Association of Gardeners

Secretary's Office: 286 Fifth Avenue, New York

The aims of the association are, to elevate the profession of gardening, by endeavoring to improve conditions within it.

To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

The association is professional in character. It must in no wise be associated with unionism.

President—Robert Cameron, Ipswich, Mass.
Vice-President—John Barnet, Sewickley, Pa.
Secretary—M. C. Ebel, 286 Fifth Ave., New York.
Treasurer—Montague Free, Brooklyn, N. Y.

TRUSTEES (For 1922)—William H. Waite, Arthur Smith, D. L. Mackintosh, New Jersey; W. N. Craig, Massachusetts; H. E. Downer, New York.

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New York—Mrs. J. J. Albright, George F. Baker, Edwin S. Bayer, Henri Bendel, Albert Clayburgh, W. R. Coe, Mrs. F. A. Constable, Paul D. Cravath, Mrs. W. Bayard Cutting, Mrs. Charles Daniels, Cleveland H. Dodge, Mrs. Dows, Frank J. Dupignac, Mrs. Colman du Pont, Childs Frick, W. H. Gratwick, Daniel Guggenheim, Mrs. W. D. Guthrie, Mrs. B. A. Haggins, Mrs. William P. Hamilton, Mrs. John Henry Hammond, T. A. Havemeyer, Mrs. L. A. Herman, Anton G. Hedenpyl, B. H. Howell, C. O. Iselin, Otto H. Kahn, Mrs. Frank B. Keech, W. Eugene Kimball, L. C. Ledyard, Jr., Adolph Lewisoohn, John Magee, Mrs. Julius McVicker, Morton H. Meinhard, Mrs. Eugene Meyer, Jr., J. Pierpont Morgan, Mrs. J. Pierpont Morgan, Stanley G. Mortimer, Mrs. Harold I. Pratt, John T. Pratt, E. F. Price, Mrs. William A. Read, H. D. Roosen, Chas. A. Sherman, Mrs. Sam. Sloan, Benj. Stern, Mrs. W. Stursberg, Dan. Tatum, Mrs. R. M. Thompson, Wm. Boyce Thompson, Mrs. Edw. Thorne, Mrs. Henry M. Tilford, Carl Tucker, Samuel Untermyer, Mrs. Harold T. White, Mrs. Payne Whitney, E. L. Young. **New Jersey**—A. Albright, Jr., Charles Bradley, Joseph P. Day, James B. Duke, Mrs. Lewis L. Dunham, Mrs. Frederick Frelinghuysen, Mrs. K. S. Goodrich, Mrs. Gustav E. Kissel, C. Lewis, Mrs. Paul Moore, Hubert T. Parson, Mrs. Manuel Rionda, Leland H. Ross, P. S. Straus, Mrs. John I. Waterbury, Mrs. Ridley Watts, Sanders Wertheim. **Pennsylvania**—Samuel T. Bodine, Gen. Richard Coulter, Mrs. J. D. Lyon, R. B. Mellen, Gifford Pinchot, George F. Tyler, Edward A. Woods. **Delaware**—Irene du Pont, Pierre S. du Pont, Harry G. Haskell. **Connecticut**—E. Dinan Bird, Dr. Tracy Farnam, Mrs. Tracy Farnam, George M. Hendee, Miss A. B. Jennings, H. F. Schwarz, W. H. Truesdale, Edward L. Wemple, William Ziegler, Jr. **Rhode Island**—Gov. R. Livingston Beckman. **Massachusetts**—Miss M. R. Case, Mrs. William C. Conant, George P. Dike, Mrs. Louis Frothingham, Henry S. Hunnewell, E. K. Lawrie, Arthur Lyman, Henry Penn, Mrs. C. G. Rice, Prof. C. S. Sargent, Mrs. J. A. Spoor, Mrs. Bayard Thayer. **New Hampshire**—F. G. Webster. **Ohio**—F. F. Drury, H. S. Firestone, Mrs. Francis F. Prentiss, John L. Severance, H. S. Sherman, H. L. Thompson. **Michigan**—J. B. Schlottmann, E. D. Speck. **Indiana**—Theodore F. Thieme. **Illinois**—A. Watson Armour, Harry B. Glow, A. B. Dick, Clayton Mark, Mrs. Julius Rosenwald, Mrs. F. W. Upham. **Minnesota**—Mrs. Chester A. Congdon, F. H. Stoltze. **Iowa**—Mrs. G. B. Douglas. **Missouri**—August A. Busch, Dr. George T. Moore. **Virginia**—Miss Grace E. Arents. **West Virginia**—Mrs. Arthur Lee. **Georgia**—E. H. Iman. **South Carolina**—Robert S. Mebane.

LOCAL BRANCHES

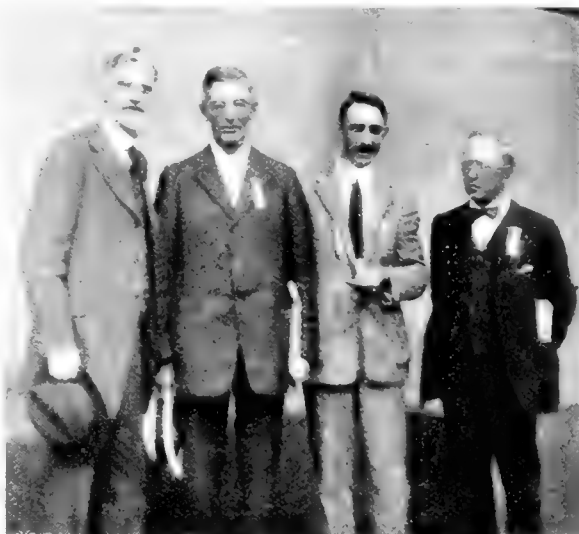
Newport, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.
St. Louis, Mo.: George H. Pring, chairman; Hugo M. Schaff, secretary.
Nassau County, L. I.: John T. Everett, Glen Cove, chairman; John McCulloch, Oyster Bay, L. I., secretary.
Boston, Mass.: Robert Cameron, chairman; W. N. Craig, temporary secretary, Brookline.
Western Pennsylvania: Manus Curran, chairman, Sewickley; Henry Goodband, temporary secretary, Sewickley.

AN APPEAL FROM PRESIDENT-ELECT BARNET.

Dear Fellow Members:

The great honor that was bestowed on me at the Boston convention in electing me president of our association was entirely unexpected.

While I fully appreciate the trust conferred in me, I declined my position when first discussed on the grounds that



Right to Left—President Robert Cameron, President-elect John Barnet, Past-president William N. Craig, Secretary M. C. Ebel.

I belong to what is known as the young men of the profession, and that there are still many older members available who could most creditably occupy the office tendered to me.

While I do not feel that I shall be able to surpass the records of some of our past presidents, I am resolved to at least try to equal them during my term in office, and I appeal to all the young men as well as the older men of the association to aid me in carrying out my resolution.

As a first step I should like to see an active campaign conducted to increase our membership both among the gardeners and their employers.

As a token of appreciation for what our president has accomplished for the good of our association and the noble profession it represents, let us set the time to begin our campaign *now*, and let us enlarge our membership before Mr. Cameron retires from office. I am sure he will not be opposed to my suggestion. If you cannot personally reach the fellow gardeners of your acquaintance, who are not yet members, and will send their names to our secretary, he will write to them for you. He will also send you application blanks for those friends you can reach, if you will apply to him for them.

Do not overlook the importance of trying to interest your employers to become sustaining members. Show them the list of our sustaining members which appears in the GARDENERS' CHRONICLE. These members have become an influential part of our association and we want more of them. The secretary will willingly write your employer on the subject; if you prefer him to do so and will so instruct him.

In conclusion, I ask that we all unite to make our association the most influential of all organizations for the advancement of horticulture in America. Let us ask ourselves "What are we doing to help our association?" and not "What good is the association to us?" As its influence for good becomes more generally known, we shall all benefit thereby.

JOHN BARNET, President-elect.

MEETING OF THE BOSTON BRANCH

The Boston branch of the association held a meeting at Horticultural Hall, September 26, to receive the reports of the convention committees. President Cameron officiated at the well attended meeting. W. N. Craig submitted the financial statement which showed only a very slight deficit on the expenditure of more than \$1,000 for the entertainment of those attending the convention. The stenographic report of the business proceedings of the convention was at the meeting's disposal, and detailed the discussions in which some of the members present had participated.

Mr. Craig stated that many letters had been received from distant visitors to the convention, expressing their appreciation of the welcome and the hospitality extended to them. The beautiful rose gardens, wonderful collection of trees and shrubs, and splendid condition of the velvety lawns were a revelation to those who had not before visited the estates in the vicinity of Boston. The arrangements which facilitated the work throughout the business sessions, regarded as most interesting and instructive, were also commented on, all of which was pleasing news for the members of the various committees to listen to.

NEW MEMBERS

Sustaining Members: Arthur Lyman, Waltham, Mass. (George F. Stewart, superintendent).

Active Members: Charles C. Case, Lake Forest, Ill.; Roy H. Caverly, Lowell, Mass.; Walter Hunt, Somerville, N. J.; C. M. Wagner, Baltimore, Md.; Sidney C. Abraham, Prides Crossing, Mass.; Neil McCallum, Pittsburgh, Pa.; William G. Williamson, Locust Valley, L. I.; John Cotterton, Elberon, N. J.; George Harbison, West Somerville, Mass.; John Costoff, Sharpsburg, Pa.; Joseph Reardon, Cambridge, Mass.; Donald Crighton, Ipswich, Mass.; James E. Bond, South Lancaster, Mass.; Arthur Gates, Purchase, N. Y.; J. D. George, Beverly, Mass.; Thomas J. Murphy, Chestnut Hill, Mass.; Niels G. Erickson, Magnolia, Mass.; W. D. Johnson, Nahant, Mass.; Edward W. Newman, Wollaston, Mass.; Alexander Taylor, Readville, Mass.; A. Atkinson, Whitestone, L. I.; Charles W. Smith, Harrison, N. Y.; Olaf Drewes, Boston, Mass.; James MacDonald, Tarrytown, N. Y.; John McIntyre, Garrison, N. Y.; Joseph Sewall, Mt. Kisco, N. Y.; Edgar Caddick, Wellesley Hills, Mass.; Donald Campbell, New York, N. Y.; Henry T. Raymond, Saxonville, Mass.; William H. Smith, Beverly, Mass.

Associate Members: George Cruikshank, Boston, Mass.; Lindsey B. White, Boston, Mass.; George Strange, Rye, N. Y.; John H. Troy, New Rochelle, N. Y.

REMINISCENCES OF THE GARDENERS' CONVENTION

John H. Troy

Leaving New Rochelle, N. Y., September 12, it rained continually during the six hour trip to Boston. William Munroe of California, a member of our party, said that it was the first rain he had seen in six months, which went to prove that America was not dry. We took a taxicab to the Hotel Brunswick, where we had made reservations, but that did not count as we were informed that the hotel was full, inside and out with gardeners and would-be gardeners. We were sent, however, to the Hotel Buckminster where they had reserved for us a beautiful spacious apartment, which accounted for our not attending the Wednesday morning session of the convention, as Munroe insisted that we ought to stay in the suite of rooms to get our money's worth. That's the Scotch of it.

The annual banquet of Wednesday evening brought the members into more intimate touch; and with that national toastmaster, Charles Hoitt in the chair—who discharged his onerous duties with a wealth of wit, humor and repartee—the banquet was voted a "humdinger."

I would suggest that at our next banquet, the speakers' table be on a raised platform for greater visibility and other possible opportunities; who would not like to have thrown a few shells at Jim Stuart, when he told about oysters not being popular in Scotland, as there was too much waste in them, as the Scots could not eat the shells.

But the scheduled speakers did not have all the glory of entertaining; good stories were the order at all the tables. Down at our end of the banquet room, Wm. Anderson told a good one about two travelling gentlemen in a Boston Hotel who got to talking about races. One said that the closest race that he had ever witnessed was at Saratoga where the two winning horses were running neck to neck and head to head; when going under the wire one horse flapped out his tongue and won by it. The other gentleman said that he had seen a still closer race than that; he was once in Scotland.

Nothing could have been finer or more inspiring than the arranged outings; the first day's outing was a genuine surprise to us New Yorkers; presenting the beautiful estates along the North Shore. This scenic loveliness was topped by an event equally delightful; after viewing the estates, we unhorsed at Castle Hill Farm, the R. T. Crane, Jr., estate at Ipswich over which the president of the N. A. G. is superintendent. There we followed the leader down to the sea shore where we sat down on rugs laid on the sand dunes. After a most sumptuous clam bake some joker proposed a rising vote of thanks to Mr. and Mrs. Crane. It was noticed that only about half of the diners stood up; the other half, too full for utterance, kept their seats on the sand, but managed to say: "hear," "hear" and "bravo";

but Robert Cameron saved the day by marching us up the long hill and by the time the return was made to the cars, we were all fairly back to normal.

How we did revel in the rock garden and arboretum of the Thos. E. Proctor estate. It added to my pleasure that I rode in the same car with that natural born genius of a gardener, James Marlborough.

The second day was equally enjoyable; one well-kept estate after another unfolded before our advancing company; and these continuous beautiful places, together with the scenes of historic interest, the literary shrines, other quaint and distinctive places, the opportunity of viewing advanced horticulture in rare and comprehensive display proved an uninterrupted enjoyment and an invaluable interest. It could not but arouse in me intense convictions that a convention such as this one is a liberal education and an incentive. At such a gathering one meets horticulturists capable in the many phases of their profession, and cannot but go away with added knowledge. To be able to compare practical knowledge with men of their experience and ability, is not only of immense value to the gardener, but to the gardener-employer. I feel that I must make a plea for the gardeners to back up the N. A. G. There is no doubt that it is putting the profession of horticulture on a higher plane. It is a society to be proud of, and the representative men who are lending their efforts and covering the map of U. S. A. with the strengthened and worthwhile purposes of the Association deserve the heartiest support and financial aid of the members.

Another feature of this annual convention is that it is invariably held at attractive places and provides a pleasant vacation where the gardener not only goes with profit to himself professionally, but he can take the women members of his family and give them a charming trip under delightful conditions. The ladies at the convention just passed proved a refreshing part of the company. They were not noticed smoking cigarettes, and they were most attentive and gracious to their own husbands (most remarkable). It would be difficult to find a group of women pleasanter for brightening the social part of a convention assemblage. They were as nice and sweet and womanly as could be; another reason, and a lovely one, for belonging to the N. A. G.

FAMOUS MASSACHUSETTS ESTATES.

(Continued from page 299)

best known garden in Greater Boston. It is a garden, the character of which is entirely different from that of most of the other estates visited, there being no room for great stretches of lawn and for extensive plantings of trees and shrubs. Accordingly much attention has been given to purely ornamental features, including statuary, fountains and the like. Its Italian garden has often been photographed and described. In addition there is a small Japanese garden. Duncan Finlayson, one of the best known gardeners in New England, is in charge of this famous estate.

ESTATE OF E. D. BRANDEGEE

Faulkner Farm in Brookline, the estate of E. D. Brandegee, has been in charge of W. N. Craig, former president of the National Association of Gardeners, for many years. Mr. Craig who is going into landscape work has been succeeded by James Methven. There are 250 acres of Faulkner Farm, much of which is given over to vegetable gardens and farm crops. It contains a great many ornamental trees and shrubs, however, and some rock gardens, in which Mr. Craig has taken much pride. On an elevation adjoining the house there is a large formal garden, the most interesting feature of which is a pool and oval pergola at one end. Here many valuable ornamental features are to be found and the pergola itself is covered with a luxuriant growth of *Aristolochia* and other vines.

ESTATE OF PROF. C. S. SARGENT

Holm Lea, as the estate of Prof. C. S. Sargent, director of the Arnold Arboretum, is called, is in Brookline, but not far from the arboretum. Here a brick house with a strong English suggestion is set close to the ground, and is surrounded by wonderful broad sweeps of lawn bordered by trees and shrubs, including many kinds from foreign lands. This estate has long been famous for its rhododendrons, and in years past has been opened to the public when they were in bloom. Unfortunately many of these were destroyed by the hard Winter a few years ago. Here, too, is a splendid collection of lilacs and ornamental crabapples, together with many Chinese and Japanese trees. This estate also includes greenhouses in charge of Charles Sander, who is little less than a wizard in the handling of rare ornamental plants. Here the Kurume azaleas were brought into flowering for the great show in Boston a few years ago, and here, too, many rare importations are tested out.

The photographic illustrations are through the courtesy of Roderick W. Ross, Dixmont, Pa. Originals of these photos and other photos may be secured from Mr. Ross.

CLEVELAND HORT. SOCIETY

The monthly meeting of the above society was held September 14. President R. P. Brydon in the chair. The flower show committee reported progress.

C. M. Scherer, pathologist of the Davey Tree Expert Co. of Kent, Ohio, was the speaker of the evening, giving an interesting talk on fungus diseases of trees. Mr. Scherer first outlined what fungus is, following with the life history of the chestnut leaf blight, elm tree twig and branch fungus, and fungus which attacks other parts of trees. Spraying with fungicides as a preventative before July 1 was considered by Mr. Scherer as the best treatment for leaf fungus or rust; for other eradication and sterilization of all infected parts, or trees, and planting of species immune from attack of the disease. The birch and hickory tree borer was discussed and the ravages it is making throughout the country with no preventative in sight to help combat the pest. A rising vote of thanks was tendered to Mr. Scherer. William Temblett and Mrs. Ella Grant Wilson spoke of the progress of the society and outlined what may be done in the future.

W. J. BRUCE, Sec'y.

NASSAU CO. HORT. SOCIETY

The regular monthly meeting of the above society was held at Glen Cove, L. I., October 11. A hearty vote of thanks was given the managers for the splendid way they handled the dahlia show. John F. Johnston and J. Kelly received the thanks of the society and were congratulated on their excellent exhibits on the second day of the show. A letter of appreciation was sent to Mrs. George D. Pratt for securing Professor Fairchild, who gave a very interesting lecture on October 1. The chrysanthemum show will be held on November 2 and 3 in Pembroke Hall. Joseph Adler and John Forbes will again be in charge. Exhibits for the November meeting will be 3 pink, 3 white, and 3 yellow chrysanthemums, special for assistant gardeners. Table decoration of chrysanthemums, all to be low tables.

ARTHUR COOKE, Cor. Sec'y.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY.

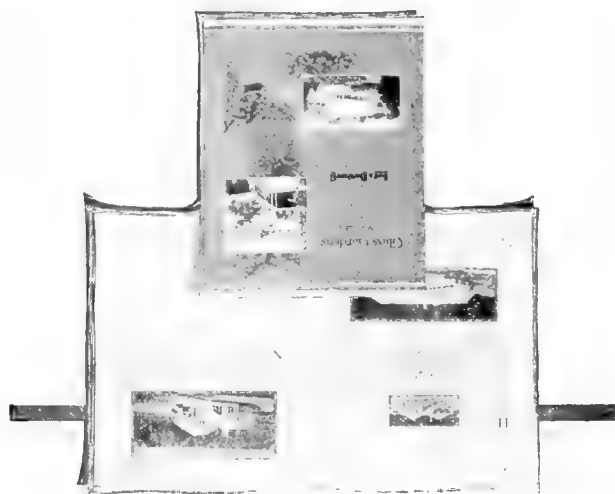
The September meeting of the above society was held in Greenwich, Conn., on September 12.

The exhibits of flowers and vegetables were exceptionally good. Everything was reported in readiness for the annual flower show.

W. Sealy was tendered a rising vote of thanks for the able way in which he conducted the annual outing at Roton Point, Conn., on Aug. 10.

W. W. Gay gave an interesting lecture on Landscape Architecture. A hearty rising vote of thanks was tendered to him.

The annual Dahlia show, held in Greenwich on Sept. 19-20-21, was well attended. There were some large and fine exhibits by commercial men, John Scheepers, Inc., being awarded a gold medal for a fine display of Judge Marcan's Dahlia creations. For the display of Dahlias covering 50 sq. ft. John H. Troy received first prize. Second prize was awarded Mills and Co., a silver medal. Third prize Marnetto Hill Nurseries, bronze medal. Some of the largest prize winners in the private classes were Mrs. W. A. Read, Purchase, N. Y.; Mrs. H. T. Pratt, Glen Cove, L. I.; Mrs. Dearborn, Rye, N. Y.; Mrs. F. A. Constable, Mamaroneck, N. Y.; Mrs. Whitelaw Reid, Purchase, N. Y.



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2. Four Bench House 25 feet wide.
3. General Purpose Four Bench House Giving You Four Compartments.
4. Plant House and Wings with Four Compartments.
5. The Sectional Construction Its Ease of Enlargement
6. The Construction Fully Described
7. A Rose House 130 Years Old.
8. The Most Greenhouse For the Least Money.

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There were fine displays of fruit and vegetables with competition very keen. The first prize for vegetables was awarded to Mrs. A. J. Moulton of New Rochelle, N. Y. The Garden clubs made a fine showing, all classes being well filled. The amateur classes were also keenly contested. In the class for the best seedling Dahlia William Shaw of Greenwich received a gold medal.

The October meeting was held in Greenwich, Conn., Oct. 10th.

There was a good attendance. The exhibits of flowers, plants, and vegetables was fine, the judges finding it difficult to select the prize winners.

Owing to the illness of the secretary G. Hewitt, John Rutherford officiated in his stead. It is hoped Mr. Hewitt will be with us next month, when it is planned to hold a chrysanthemum show for members.

The members enjoyed an interesting lecture by Henry Bird of Rye, N. Y., entomologist and collector of note. Mr. Bird illustrated his lecture with specimens and described in detail his big barden, the making of it and the plants to be found growing there.

T. J. BULPITT, *Cor. Sec'y.*

Here and There

SERVICE MEASURES SUCCESS

It isn't the cut of the clothes that you wear
Nor the stuff out of which they are made
Though chosen with taste and fastidious care

And it isn't the price that you paid;
It isn't the size of your pile in the bank,
Nor the number of acres you own,
It isn't a question of prestige or rank,
Nor of sinew, and muscle and bone;
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Nor a question of social degree;
It isn't a question of city or town,
Nor a question of doctrine or creed
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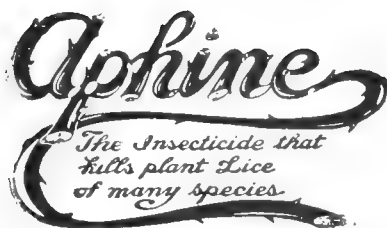
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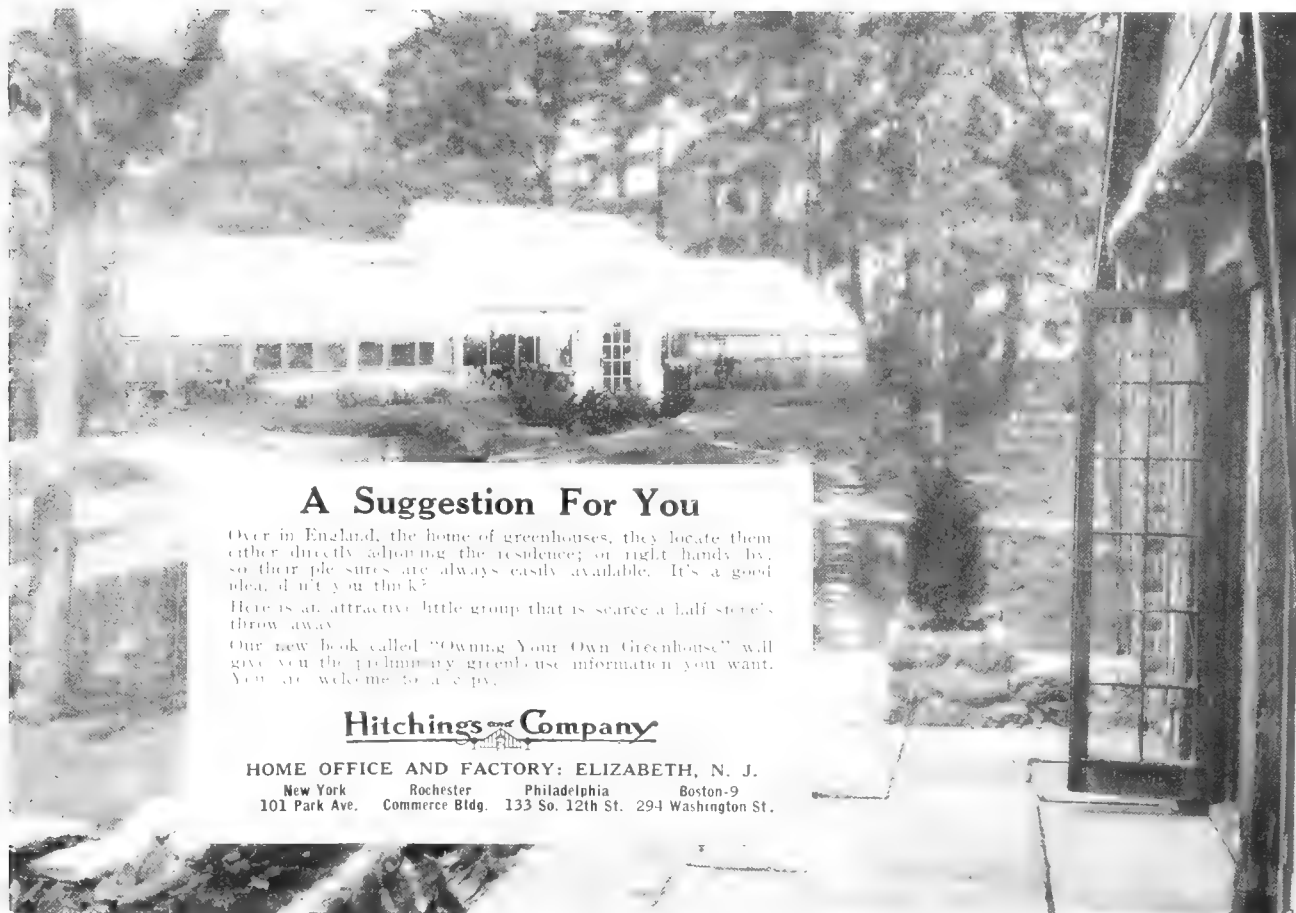
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(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

NOVEMBER, 1922

No. 11

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THE question of Winter protection is a most important one, and many gardeners in addition to the great majority of amateur growers have much to learn regarding it. The general idea which seems to persist in the minds of many is that Winter covering is applied to exclude frost and keep plants warm. This is wrong in nearly every case. In mulching rhododendrons, the idea is to keep the soil about the roots open, but in the case of hardy herbaceous perennials, bulbs of all kinds, strawberries, and plants which are generally treated as biennials, such as *Myosotis*, *Bellis perennis*, *Campanula medium*, *Digitalis*, bedding violas, and pansies, to mention but a few, if success is to be attained, the Winter mulch is not to go on until the ground is frozen quite hard. If a light coating of oak, or other leaves is then given, and the covering held in position with evergreen boughs or light boards, or a little scattering of loam or old manure over it, the plants should come through in good shape, always providing that they are planted in well drained land where water cannot lay in Winter.

* * * *

Stable manure is often used as a Winter mulch; its value for such a purpose is negligent, and with frozen ground the bulk of the manurial agency is washed away instead of penetrating the soil. There can be no better Winter covering than oak leaves, if obtainable, both for plants outdoors and perennials, biennials, bulbs in pots and flats, and the subjects carried over in the cold frames. The failure of many growers to properly winter Canterbury bells, foxgloves, pansies, forget-me-nots, and daisies is usually due to too early and too heavy covering. With the two first named plants it materially assists successful wintering if the outer leaves are cut back severely and a dusting of coal ashes scattered over before the mulch is applied. It is not so much the actual freezing which harms plants outdoors as it is the constant freezing and thawing which lifts plants out of the soil. This is the main reason why mulches are necessary. It never pays to remove Winter covering with the advent of a few premature warm days in March—a suggestion of the tropics is invariably followed by a reminder of the Arctics.

* * * *

When the late Fall has been exceptionally dry and there is danger of the ground freezing up before we get soaking rains, it is a very good policy to soak rhododendrons, kalmias, andromedas, and all small leaved evergreens which have been recently planted, for if they go into

the Winter with dry feet and the soil remains frozen for a long time, a heavy death roll is almost certain. The annual "winter killing" of such evergreens as junipers, retinosporas, thujas, and rhododendrons is invariably due not so much to Winter cold as dryness at the root. This is particularly true of new plantings at the bases of houses whose soil is quite porous. Such plantings are usually made distressingly thick with the "immediate effect" in mind, a plan applauded by some landscape architects and nurserymen and which estate owners tolerate as necessary, but which generally gives a jumbled tangle in lieu of some nice individual specimens.

* * *

The necessity of keeping rhododendrons well watered, especially just ere Winter sets in, is not sufficiently realized. If these broad leaved evergreens go into the Winter with moist roots over which a foot of leaves has been spread, they need no further protection, unless it may be a windbreak on the most exposed side. Not in the last twenty years have I given any over-head covering to these plants in New England and even with temperatures as low as twenty to twenty-five degrees below zero, the amount of Winter killing has been almost negligible. On the other hand, I have seen beds which have been carefully covered with evergreen boughs or burlap come through in very bad shape. As soon as the covering is removed, the wind and sun raise havoc with these plants, and if, perchance, a real hot day comes just after uncovering, the foliage will always burn badly. Such varieties as *album elegans*, *roseum elegans*, "Charles Dickens", *Caractacus*, *Everestianum*, "C. S. Sargent," and "Kettledrum," to name only a few of the really reliable hybrids, have lost very few buds by Winter killing within recent years. The lace wing fly I consider a far greater menace to successful rhododendron culture than Winter cold. This insidious pest does not trouble plants growing in the shade, but on rhododendrons, kalmias, and andromedas in full sun, it is very destructive. A couple of thorough sprayings, one just before and the other immediately after flowering will keep it in subjection; using a good nicotine spray containing some soap, which makes it more adhesive, and directing the spray below the leaves, will do the trick.

* * *

The action of the Federal Horticultural Board in allowing free entry to plants of *Rhododendron ponticum*,

Adiantum punctatum, and *Acer palmatum*, not over three year seedlings without having soil washed from the roots, comes as the first dent in their Chinese wall of plant exclusion. The bulb bearing would seem to indicate that the continued exclusion of such bulbs as *Chionodoxa*, *Galanthus*, *Iris*, *Scilla*, and *Fritillaria* was absolutely indefensible and we may reasonably expect the admission of these and others next season. Growers here admit their inability to successfully reproduce them, so why debar them? Much is made of the fact that quantities of cattleyas and one or two other orchid hybrids are being raised from seed here now and that some of them will flower a few years hence. Is anyone propagating *Phalænopsis*, *Vanda carulva*, various oncidiums like *variosum* *Rogersii* and *splendidum*, such dendrobies as *Phalænopsis Schrorrula*, such dendrobies as *Phalænopsis Schradleriana*, *Wardianum*, *formosum*, *giganteum*, and *Dearei*, and odontoglossums? There seems absolutely no reason in debarring such varieties which to many people are much more beautiful than the gaudy omnipresent cattleyas,

* * *

Hardy chrysanthemums have been particularly good this Fall in spite of quit severe frosts in October. Some growers seem to have trouble in wintering them successfully. They need land which is very well drained, and in New England are always seen at their best planted in borders with a little slope, and either against the house or very near to it. As plants in the average formal garden, they are useful but have their limitations. I have not found that they carry over well from year to year. Young plants pinched until the end of June give the best service. It is a simple matter to carry over a few stock plants in a cold greenhouse, cold frame, or even a cellar with an earthen floor where the plants can get some light. When cosmos, dahlias, gladioli, asters, and other garden flowers have passed, these chrysanthemums prove especially welcome, and as I write (November 10) some clumps outside my home are covered with bloom. The small pompons stand the greatest amount of cold, the singles and anemones blacken more or less as the temperature falls to twenty-four degrees or lower. The following with me have done remarkably well and should succeed with the average grower: "Doris," the hardiest of all, "Ora," "Normandie," "Seven Oaks," "Lilian Doty," and "Roupe Beauty." There are many other beauties, superior no doubt to the above named in some respect, but not in hardiness.

* *

While there is no decline in the popularity of the chrysanthemum as a flower, there is an undeniable falling off in the number of exhibitions devoted to this popular Fall flower, and the attendance is not all that it used to be. On the other hand, Spring flower shows have become increasingly popular and profitable. The days of big specimen plants and blooms of chrysanthemums seem to be numbered at least temporarily. The general public grew tired of them and it is refreshing to note the rapidly increasing interest in and popularity of pompons, singles, and anemones grown naturally. The greater demand for varieties adaptable to garden culture is also encouraging. There will continue to be a place for big blooms, and a more limited one for specimen trained plants, but with their gradual elimination what can be done to make Fall exhibitions more varied and attractive?

*

The great charm of a Spring exhibition lays in the infinite variety of subjects to be seen and the fact that the general public is more or less hungry for them after a long Winter. On the other hand, when chrysanthemums

come in reason, many of our trees and shrubs are magnificent with foliage or fruit, lawns remain green and some flowers still linger outdoors. While chrysanthemums will continue to be the great feature at autumnal shows, efforts should be made to bring out their decorative effects in vases, baskets, hampers, and for table and mantel effects. The free use of oak and other foliage helps materially in producing pleasing effects. Apart from chrysanthemums, however, there is much material available. The English race of Winter flowering begonias are magnificent. Plants of "Emily Clibran," "Orange King," and other varieties, four feet in diameter, out-do any specimen chrysanthemums in colorful effect and beauty. The smaller flowered begonia, like *melior*, "Flag of Cincinnati," and "Gloire de Lorraine" are not at their best thus early, neither are cyclamens, but quite presentable batches could very well be staged. Then there are nerines, and what can surpass a group of them in beauty? Orchids in a good variety are in season and the addition of groups and single dishes of seasonable fruits and vegetable helps to round out a well varied and attractive show. It is not too late also to include displays of Autumn sprays and fruits such as cotoneasters, *Crataegus*, viburnums, *Berberis*, roses, and many others still in full beauty, and, of course, cut roses, carnations, and other flowers while not of the same quality as in early Spring, will all help to add interest to such a show.

* * *

That interest in the culture of hardy roses is surely growing is evidenced by the fact that new rose gardens are continually being developed. Plans are under way to create the greatest rose garden of its kind in America in the Arnold Arboretum to cover about three acres of land and cost some \$300,000, which would include all known hardy species as well as the so-called garden roses. Meantime, a large garden with a rose garden as the central feature is planned for Franklin Park, Boston. Work on this will commence next year and part of the planting will be done. It is estimated that 25,000 roses will be planted in this garden during 1923 and 1924. Income from the Francis Parkman fund will provide the necessary \$150,000 for the work. The making of such gardens should help enormously to develop the hardy rose industry.

* * *

I have always failed to see what greater risk is incurred in importing hardy roses than the stock they are to be grafted or budded on. The latter, however, is admitted and the former debarred. The wholesale dumping of roses grown in the muck lands of Holland and sold for a mere pittance years ago did much to discourage people from planting garden roses. The Dutch stock proved to be notoriously unreliable and short lived, in marked contrast to the British and Irish roses. Great efforts are being made to produce good, hardy roses here to take the place of the "dangerous" foreign articles and with considerable success. Whether the *Multiflora*, *Japonica* and other stock used will prove as satisfactory in the long run as the *manetti* and seedling brier, time alone will tell. Some growers find that the heaviest plants received are very unsatisfactory and make but feeble growth under the best treatment, the cause for which I have been unable to fathom. There is much need for more careful labelling of field grown American roses. In looking over a large collection this Summer, the purchaser, a keen rose enthusiast, said that not more than half the plants purchased had come true to name. This is most regrettable as well as discouraging. It is a poor advertisement for the party sending out such roses, is a practice still too commonly indulged in, and cannot be too strongly condemned.

Hardy Lilies for the Garden

ARTHUR SMITH

THERE are many garden enthusiasts, both amateur and professional, who make a hobby or specialty of some particular plant genus, it may be roses, dahlias, gladioli, or what not; but so far, I have never heard of a Lily specialist.

The various hardy lilies are certainly not surpassed, or even equalled by any other hardy plant in their unique combination of beauty and graceful magnificence. It is surprising that the majority of people owning gardens know so little about them, excepting those grown in pots under conditions of artificial heat, and they have no conception of the numerous hardy kinds, including twenty or more that are native, by which their gardens may have their floral effects increased during several months of the year, and in the exceptional instances to the contrary, the species have been confined to the old Tiger Lily, with the addition perhaps of the Madonna, *Lilium candidum*.

In a country where there are so many native species of lilies, all of which are beautiful and worth while growing, it is strange that this genus has been so neglected by gardeners, and that the merits of this plant are apparently so little known.

It is true that this genus of flowers has the name of being unsatisfactory from the point of permanency and more or less difficult to grow, yet, if their few requirements are attended to, one need not fear disappointment.

None of the hardy lilies present any insurmountable difficulties in culture, although some are less trouble, establish themselves more readily and produce more immediate effects than others.

Coming as they do from many parts of the Northern Temperate Zone, they are found naturally growing under various soil conditions, and in the case of those which have the character of being difficult to establish in gardens, the nearer we can imitate such conditions the more likely we are to be successful. But when we consider the different habits and habitats of this wonderful genus of plants, it is astonishing how large a number of species there are which are not only hardy in our gardens, but which will thrive under the same conditions provided certain special features are borne in mind.

The question of soil for lilies is an important one, and this is too frequently overlooked. At the same time, while some species succeed best when we create specially ideal soil conditions for them, I know of none which will not give a good account of themselves if they are planted in a soil prepared as it should be for all perennial hardy plants. Unfortunately this thorough preparation is in the average garden, the exception rather than the rule.

While requiring plenty of moisture, thorough drainage is essential and the subsequent cultivation cannot be too deep, nor the soil made too rich. A sandy loam is mechanically the best, with which should be incorporated plenty of old, well-rotted manure, leaf mold and peat, with enough sharp sand to create a suitable mechanical state if the soil is at all heavy.

Probably the greatest mistake made in lily culture is in not planting the bulbs deep enough—a fault which is too often connected with the planting of all hardy bulbs. In most cases there should not be less than eight inches of soil above the top of the bulb, and those with large bulbs like the Japanese kinds should not have less than a foot of soil over them.

All lilies like a cool soil and for this reason generally do better when growing among other plants, and the taller

species are therefore especially at home among such things as Rhododendrons provided the latter have been properly planted and suitably cared for. Other suitable positions are among the dwarfier species of shrubs and in the perennial border among peonies. In these cases the lilies give floral effects at a time when there would be no flowers at all. An exception to planting lilies in the above situations is the well known exotic *Lilium candidum*, a species which stands by itself. This has been under cultivation for many hundreds or perhaps thousands of years, and is native of South Europe and of Asia as far East as Persia. Up to a generation or so ago when any one spoke of lilies in a garden this was the only species meant.

Its uniqueness consists in the fact that a month or so after the flower stems have died down the bulb sends up an Autumn crop of leaves. For this reason the bulbs must be planted sufficiently early in the Autumn to enable these leaves to be produced, otherwise the bulbs will not send up a flower stalk the following season, and in fact will probably rot in the ground. With proper care, however, these may be transplanted both in the Autumn and in the Spring when the leaves are green, by lifting them with a good ball of earth, wrapping the ball in burlap and planting without removing the burlap. This characteristic of throwing up a rosette of leaves both in Autumn and Spring renders it necessary to grow this lily under conditions where it is not shaded by, or in competition with, anything else.

Even under the best conditions *candidum* will rarely give a very good account of itself the first year after planting, and in fact needs several years to accustom itself to new surroundings. When once established and flowering well it should never be disturbed. It is well with this species, and in fact with all, to remove the flower buds before they open the first year after planting, taking care not to injure the stem. *Lilium candidum* is also exceptional in disliking peat, in fact prefers a sweet soil and is not adverse to the soil containing a little lime; it will also do better on a heavier soil than any other species.

While, with the latter exception, all lilies do well when the soil is shaded by other plants, most of them will thrive when grown in groups by themselves; in which case the soil should be mulched after they have started to grow in the Spring.

A characteristic feature of nearly all our native lilies is that their bulbs are annual after the same principle as those of gladioli. These annual bulbs are produced at the end of a perennial rhizome, which causes the flower spike to come up in a more or less different place each year. The only native lily which bears an absolutely perennial globose bulb after the manner of the well known bulb imported from the East is *Lilium columbianum*.

The following list of native lilies, while not complete, comprises those of importance and which can all, we believe, be obtained through growers of native plants.

Lilium bolanderi is a rare species from California, growing from one to three feet tall, with reddish purple flowers spotted with black. Requires a rich, well drained sandy soil. *Canadense* is a beautiful species and perhaps the best known native lily, being found over the entire Eastern half of the country. Its stems are up to five feet tall, carrying drooping flowers of orange, red and yellow, spotted with brown. It likes a deep, rich, moist soil and partial shade, but stands the sun well provided it never suffers for want of moisture. *Carolinianum* is a beautiful

species having recurved orange flowers, very fragrant. Although it is called the Southern Swamp Lily it stands comparatively dry conditions better than any. Found in Virginia and southward. *Catesbaei* is one of the earliest to bloom, March and April, and should have a sheltered position, among dwarf evergreens for instance. It rarely grows more than two feet high and has red flowers with purple spots. In the North it should be thickly mulched during Winter. *Columbianum* is a rather uncommon species from Oregon and Washington. Height two to three feet: flowers bright orange with purple dots. This has been found a good species for the hardy border. *Grayi* is one of the best and has succeeded well under cultivation. Flowers are bell-shaped and exceedingly beautiful, dark reddish-brown spotted with purple, borne in July and August: height two to three feet. All perennial borders should have groups of this. Found on mountain summits of North Carolina. *Humboldtii* (*puberulum*), is a Californian species very deserving of more extended cultivation. It reaches noble proportions, sometimes as tall as eight feet, and bears large orange-red flowers spotted with purple, six to ten on a stem. *Kelloggi* while smaller than the preceding is very graceful, its slender stems three to four feet tall bearing as many as fifteen pink flowers which are very fragrant. *Maritimum* is a dwarf species from boggy situations on the Californian mountains and is an excellent subject for the Bog Garden or along the edges of water just above its level. *Philadelphicum*. This species is found, generally in woods, over a large part of North America extending from Canada to North Carolina and westward to the Rockies. While in its natural state it selects somewhat shady situations, it will stand sunny, dry ground better than perhaps any other and it will grow almost anywhere excepting in a wet soil. It is a good species for planting along woodland walks and amongst shrubs. *Superbum*. It would be rather difficult to exaggerate the superb qualities of this magnificent American Lily. One has to see the seven foot tall, leafy stalk, surrounded by a cluster of from thirty to fifty brilliantly beautiful orange and gold flowers, before they can realize the impressiveness of this species at its best. While it is native of somewhat swampy places in the Eastern half of the country, it will do well in borders provided it has a deep, rich soil containing plenty of peat and leaf mold, and never wants for water. It is one of the best Lilies for the Rhododendron bed. It is found from New Brunswick to Georgia. *Washingtonianum* is a Californian species and when it does well is a beautiful and stately lily, but it is rather capricious in the East, although many have found it to be an excellent garden kind. Its flowers are white with purple spots and the entire blossom becomes tinged with purple after fully expanded. This lily will not endure stagnant water. A variety of this, although by some considered a distinct species, is *rubescens*, having more striking characters and it is said to have been found growing to a height of twelve feet.

As, with the exception mentioned, the bulbs of these native Lilies are small, annual, and are borne upon rhizomes: they are both very tender and must be handled with great care, the numerous, fleshy scales of the bulbs being very easily detached. Doubtless it is this tenderness which has been the cause of many failures in bringing these lilies into cultivation, and unless extreme gentleness is used from the moment of lifting them from their growing position until they are planted, more or less damage is sure to result, and if the bulbs live they may take several years to recover. Another point is that these bulbs should not remain out of the ground a moment longer than necessary, and when sent to a distance more care in packing should be exercised than is usually the case.

In addition to the native lilies, of which the above list contains the names of the better half, there are quite a few exotic species which should be planted for the purpose of making our gardens more beautiful. Some of these have the discredit of dying out in a year or two, but in the main, this failing is generally caused by bad soil and want of care.

Undoubtedly the first lily to be brought into cultivation was *Tigrinum*, and it should still be grown as much as ever. The old, original kind is handsome but the newer variety, *splendens*, has grander, orange-red flowers, grows six to eight feet tall and blooms a month or two later. There is also a double flowered variety which is the only double lily known. This species can be propagated by planting the bulblets which form at the axils of the leaves, in fact it spreads naturally by means of them and is now found wild in several Northeastern States. *Candidum* has already been mentioned. *Croceum* is in common cultivation in Europe of which it is a native, and it is one of the sturdiest and hardiest of the genus. It will grow in almost any soil or position and bears in Summer huge heads of large, rich orange flowers. It is attractive in the mixed border but shows best on the margin of a shrubbery where its stems just over-top the surrounding foliage. It is native of the colder mountains of Europe and naturalizes well. Some of us can perhaps remember the stir made by the arrival of the Golden-rayed Lily of Japan, *L. auratum*. A small consignment was sent, said to be bulbs of a very large Lily growing wild upon the Japanese Islands for which fabulous prices were charged, but of those who paid big money for these bulbs only a few obtained any results, and practically the first consignment was a failure. The gorgeousness of the comparatively few flowers obtained, however, caused the next consignment to sell very freely, and with more knowledge and experience in handling, and growing them, this lily soon rose to a foremost position among garden plants, especially in Britain. A striking point about *auratum* is its variability. If you plant a hundred bulbs not more than half a dozen will be alike either in flower or height of stem, even if the planting is confined to a named variety, of which there are several. The best is *platyphyllum* distinguishable by its palmate leaves, the leaves of other kinds being more or less linear. It has been also proved to have the hardiest constitution. Unfortunately under the conditions prevailing it is practically impossible to obtain any varieties reliably true to name through ordinary trade channels.

This Lily requires a deep well-drained soil composed of peat, leaf mold and sandy loam, equal parts of each. It is susceptible to cutting winds and should have a nook sheltered by shrubs or something from north and east winds. It has proved itself very permanent among Rhododendrons when the latter have been properly planted, and the yearly mulching with leaves is also of great benefit, as it is to all Lilies. When grown in the open border a mulch of rotten manure after the shoots have started should always be given. Under ordinary conditions in a garden where plants look after themselves this lily deteriorates and dies out sooner than any, but in a suitable soil combined with proper attention it will increase and give a good account of itself year after year. Another Japanese species is *speciosum* which has several varieties. While not so gorgeous as *auratum* it is certainly as beautiful and in North America has proved itself to be permanent under soil and other conditions advised for *auratum*. The best, hardiest, and most permanent of all exotic lilies is undoubtedly *regale* from West China. It has rich, green foliage with which the exquisite color tints of the flowers form a charming contrast. It has the advantage of being easily propagated from seed, seedlings generally

blooming the second year. A distinct advantage is connected with *regale* inasmuch as it is propagated in this country, therefore bulbs may be obtained direct from the growers at the right time for planting without being subjected to the deteriorating effects of having to remain a long time out of the ground, which weakens more or less both their growing and lasting qualities.

While there are other lilies worth growing out of doors, it does not appear that any practical purpose will be served by further extending the list, although a complete collection of them would afford an extremely interesting and unique feature in a garden. At all events Lilies should certainly form a more prominent characteristic of our hardy flower gardens than is at present the case. We know that the general complaint about them is that they soon die out. But this is not an inherent fault of the lilies.

Even if the soil and other conditions are right, lilies, or for that matter any other bulbous plant, will not be permanent unless they are allowed to die down naturally. Seed pods should be removed, unless seed is required for propagating, and they all can be raised from seed, although some take as many as eight years to reach a flowering stage. Some growers advise that the first year after planting all flower buds should be removed as soon as formed, taking care not to injure the stem. Naturally when they are planted in hard ground and receive no care, lilies will not do much and will soon cease to exist. But there is no hardy plant which will more fully respond to proper treatment or that will add a more pleasing note of beauty to our gardens during many months than the Lily.

Lilies should have a mulch after the first hard frost of about six inches of leaves, these leaves should be allowed to remain all Summer and another similar mulching given at the beginning of every Winter. For cut flower purposes more or less of the stems must be removed, but as much should be left as possible. Growing lilies in narrow beds renders it easy to erect a lath shade over them and so increase and prolong their beauty.

The best time to plant Lilies is as early in the Autumn as possible; where imported bulbs have to be used and which do not arrive until late their position should be covered with some kind of material to prevent the ground from freezing, so that planting can be done as soon as they arrive.

In conclusion we emphasize the necessity of deep planting in a deep, light, rich soil, which must never dry out.

WINTER VEGETABLES AND SALADS

KALE can be kept in a vegetable garden the entire year, excepting when the mercury drops below zero. Its flavor is very much improved by exposure to frost. Slight protection is all that is needed to keep it in usable condition. Simply mulch the Summer-grown plants with leaves, dry grass, straw, or any other suitable covering.

The dwarf varieties are specially deserving of prolonged usefulness. The leaves are a rich brilliant green color, bordered deeply with curled fringe and are attractive for garnishing. Its chief value, however, is as a vegetable similar to spinach.

Any surplus growth of brussels sprouts in the home vegetable garden can be retained fresh and green for indefinite Winter use. The whole stocks with roots attached should be taken from their place of growth and piled together somewhere in the garden and covered thickly with straw. They will freeze solid in cold weather, but the freezing process, instead of rendering them useless as it does most vegetables, conserves the original color, flavor and edibility. The frozen sprouts

should not be allowed to thaw, but should be put at once into boiling water to cook until tender.

Crisp green salad and deliciously tender rhubarb may be had all Winter long from a cellar garden.

To accomplish this have installed in the furnace room or cellar, the temperature of which must average 60 to 65 degrees, a box or built-in container for soil. A good average size is 6 feet in length, 3 in width and one in depth. Fill it in with 7 or 8 inches of garden soil and in November secure from the garden the Summer-grown roots of witloof, chicory and rhubarb—or they may be secured from any reliable seed house or, in some cases, from a local gardener. Cut off all the leaves two inches from the necks of the plants of both chicory and rhubarb, and remove any secondary shoots from the chicory. Make trenches in the soil and set the plants 2 inches apart, water them thoroughly and cover them with soil until the box is level full. The weight of the soil will assist the leaves of the witloof to grow incurved and together, forming small, well-blanching heads like Cos lettuce.

If a few salads are wanted for early use cover the chicory plants heavily with manure, which will raise the temperature below and hasten growth. Those not so covered will be correspondingly later, so that a succession may be enjoyed. The rhubarb too, will grow through the soil finely blanched and delicately tender.

Still another way to produce successional cuttings is to store some of the roots in a cool place where they will remain dormant, and plant a few at intervals. It requires three or four weeks to produce the heads of witloof in a temperature of 60 degrees. Too much warmth should be avoided as a spindling growth results.

When cutting chicory for use, remove the plants and cut off the heads leaving an inch or two of root attached to prevent the leaves from falling apart. All roots should be removed from the soil to insure its keeping sweet for successive plantings. Cut them just before you are ready to use them, as the leaves quickly turn green when exposed to the light. The rhubarb may be removed and used in the same way as if taken from the Summer garden.—*The Christian Science Monitor*.

Let us have faith that right makes might, and, in that faith, let us to the end dare to do our duty as we understand it.—Abraham Lincoln.



The Garden of Annuals and Perennials of Andrew Wilson, Springfield, N. J., Which Furnishes Him a Wealth of Blooms Until Frost. A Rose Garden Is in the Background

Roses in the Fall

IT is a growing conviction with the writer that any Tea or Hybrid Tea which has bloomed freely during a single season has "squared itself" with the owner for its purchase price. If it endures the Winter and again goes about its work of beauty another year, the rose-grower owes it at least care and gratitude, or a successor should Winter claim it.

The first expression of this care ought to be in proper preparation for the Winter. Some parts of this preparation are here suggested.

1. *Do Not Stimulate Late Growth.* The Tea and Hybrid Tea roses tend in Fall to renew active growth, and many fine buds are produced in the weeks before frost. To withhold fertilizing and extra water in these weeks helps to ripen the wood for better endurance of the Winter.

2. *Clean Ground and Clean Bushes.* Not a weed should be permitted to compete with the rose plant for soil fertility. Now, in Fall, as at no other time, it is especially important to have the bushes and the ground clear of dead and diseased leaves and twigs. If "black-spot" has been with you, every vestige of its ravages, either yet on the plants or in fallen leaves on the ground, should be removed and burned. Make sure that Jack Frost has only healthy leaves to cut off, and that he doesn't simply store for you unharmed next year's black-spot infection.

A heavy dusting of the plants and the ground with the sulphur-arsenate powder (9 parts dusting sulphur, 1 part lead arsenate) will be worth while, especially as it now appears that where this has been done for several seasons the nasty rose-bug seems to be diminishing his vigor. Mildew is also guarded against by this treatment.

3. *Fall Pruning.* The longer canes of the Hybrid Tea roses ought either to be cut off—say above two or three feet—or tied in, so that wind whippings may not loosen roots. Of course, the final pruning must be delayed until Spring.

Hybrid Perpetuals can be tied down after the longest tips are cut away. Rugosas need no protection.

Hardy climbers should also be made snug by preliminary trimming, or better by tying down. In these roses, as in Hybrid Perpetuals, the next year's bloom shoots arise from this year's wood, wherefore severe pruning is wrong.

4. *Labeling.* All roses ought to be so labeled that there is no doubt of the variety. Whatever label is used, it is important to properly consider its security in putting the roses to bed for the Winter.

5. *Protection against Frost.* Only hints may here be given, because of the wide range of climate the American Rose Society covers. Any rose is "hardy" anywhere if adequately protected.

Usually, wind and the sun do more harm than temperature. The wind vastly increases evaporation and temperature effect, and even Winter sun may stimulate unwary buds to swelling, only to be bitten later with the frost.

So protection should be against wind and sun. To hill up ground six to twelve inches around the smaller bushes is a good protection. To thickly cover the bushes with evergreen boughs is excellent, and usually sufficient save in the coldest regions. If field-mice do not abound, leaves are good protection, provided they are so covered as to keep them measurably dry, for sodden leaves, or sodden leaves and bare rose stems. Protection need not be applied until the ground is lightly frozen.

Heavy paper can be so used as to keep off wind and sun, and the straw jackets once considered essential are usually safe.

In very severe climates much more elaborate protection must be worked out, and, of this, information should be sought in the immediate neighborhood by looking up the nearest associates whose names are to be found in the geographical list of members in this Handbook.

6. *Planting Roses in the Fall.* Many of the best rosarians insist on Fall planting, having discovered that the roses will thus be prepared for an early start. Plants can usually be obtained in fine condition after the first frosts, and if the ground is carefully prepared and the roses carefully planted, a further covering of soil will afford protection. Fall planting has much to commend it.

But if for any reason Fall planting is not practicable, we commend Fall purchase of the roses. Get them to your garden, and bury the bundles of them (divested of wrapping, of course) completely under a foot of soil, marking the place for convenience, and again covering the soil with any litter to prevent the severest freezing. Such "heeling-in" must of course be where water cannot stand—no rose will endure wet feet.

This Fall buying and home storing is the solution of many rose troubles, provided the purchaser also prepares his next season's beds so that he can put the bushes where they are to bloom at the earliest possible date when the soil can be worked in the Spring.

Roses make root growth very early, and it is far better to have that growth made in your garden than in the nurseryman's rose-cellar. Planting a week or two earlier in Spring may mean the gain of a whole season in rose prosperity, and not infrequently means the saving of the plants.

Fall purchase and home storage secure not only the earliest planting opportunity, but the first and best choice of the freshest plants from the grower.

Getting Ready for 1923. Great advantage follows the preparation of the ground in the Fall, so that the beds are ready in earliest Spring. The soil settles, the manure breaks down, the sods decay, and the whole mass improves over Winter, providing the best planting conditions for Spring.

No longer is the elaborately deep soil preparation considered essential. From eighteen inches to two feet of good soil, including well toward one-third its bulk of thoroughly rotted stable manure, if cow manure is not available, and with a basis of bone-meal equal to a trowelful for each rose, will provide good feeding-ground for roses. If the soil is heavy and the drainage poor, deeper digging and heavy and rough material at the bottom are required.—J. Horace McFarland, *Editor of Publications of American Rose Society, in Members' Handbook.*

CLIMBING PLANTS

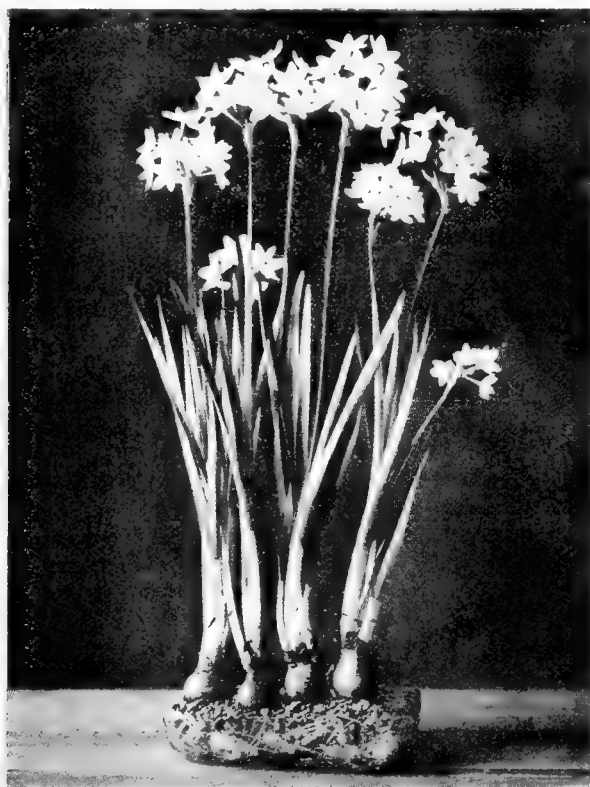
All climbing plants are vigorous growers, and unless dealt with at once soon become a tangled and uninteresting mass, almost impossible to separate. When tying of any description is done care should be taken to tie slightly, allowing the subject a fair amount of freedom in order to maintain a loose and natural effect. Once the fence, pergola or whatever the various subjects are intended to clothe is furnished allow the plants more freedom, and pretty effects will accrue. Clematises, Pyrus, Roses, etc., are often deprived of their natural beauty by the stiff training they receive.—G.

Bulbs of Easy Culture

PERHAPS the simplest bulb to handle is the paper-white narcissus. It is one of the earliest varieties of the narcissi group but can be had in bloom for a long time by successive plantings at intervals of about a week. As for the medium in which to grow the bulbs, there is nothing simpler and cleaner than a shallow bowl of water containing pebbles to support the bulbs in an upright position. In planting, a layer of pebbles is placed in the bowl, the bulbs set on this layer, and some pebbles packed about each one to hold it in place. The water

root growth will not be as rapid as in a warmer room, but when the bowl is well filled with roots it can be brought to the light. The leaves will then have started and may be a few inches long and white, and on that account the bulbs should be brought to the light gradually. After growth is well advanced they may be placed in a sunny window for a short time each day. Bulbs that are started in a cool place will produce a sturdy growth and the flowers will last longer than those that have grown rapidly in a very warm room. Narcissi treated in this manner can be had in flower from six to eight weeks from the time of planting.

Paper-white narcissi can also be grown in soil in pots under similar conditions. If a cool dark place is not available for storing the bulbs indoors a shallow trench may be dug in a well-drained place outdoors. In this trench from two to three inches of ashes should be placed for drainage, and on this the pots set so that the rims are about six inches below the surface of the soil. The trench should then be filled with soil and the surface mounded to shed water. As the weather becomes colder the soil should be covered with leaves or some other coarse material, this being held in place with boards. Four weeks is the shortest time the narcissi should be left outdoors,



Paper-White Narcissus

should come barely to or a little above the base of the bulbs. With a large bowl it is recommended to change the water occasionally, but with a shallow one this is almost impossible without disturbing the pebbles and injuring the roots. If a few pieces of charcoal are placed in the bowl the water will be kept fresh, so that it will never have to be changed but only enough added to allow for evaporation. If any bulb should rot and thereby contaminate the water the affected bulb should be removed and the water changed, but this seldom occurs with narcissi unless the bulbs have been injured before planting.

The bowls containing the bulbs should be put in a cool dark place, a fruit cellar being an ideal location. The essential points to remember at this stage of the bulb growing are (1) that the storage place be kept dark to prevent the leaves from starting; (2) that it be kept cool, the roots then being able to grow before the tops; and (3) that the bulbs get plenty of air. In selecting a cool place a temperature of from fifty to sixty degrees will suffice, but it is better if it can be still cooler. Temperatures below freezing must be avoided. Sometimes a cool dark place is not available, and in that event a corner in a comparatively cool room can be darkened with a box and the bulbs placed in this. If the room is very cool



Roman Hyacinth

six or eight weeks being better. The bulbs should be planted in pots or pans, preferably the latter. A good quantity of broken crocks or stones should be placed in the pots for drainage, then a layer of good garden soil, and on this the bulbs set so that when the pot is filled with soil the necks of the bulbs will be barely visible. They should then be watered thoroughly and put in the storage place.

The Chinese sacred lily can be grown in bowls of water and pebbles, but not as successfully as the paper-white

narcissus. The bulbs are much larger, deteriorate rapidly in the dry atmosphere of the stores, and cost considerably more than the paper-whites. It is therefore advisable for those who have never grown bulbs indoors to first try the narcissi and as cultural experience increases attempt growing the Chinese sacred lily.

The Dutch hyacinth is also readily grown in water, but it takes longer for the flower to develop and only one bulb may be grown in a glass. (Hyacinth glasses can be obtained at the seed stores.) Only the choicest bulbs should be purchased and preferably named varieties. A piece of charcoal about an inch square should be placed in the glass to keep the water fresh, the bulb set in the cupped portion, and water added until it barely touches the base of the bulb. No pebbles are necessary, but water should be added occasionally to keep the level constant. The bulbs are then placed in a cool dark place, as with the narcissi, and should be left there until the glass is well filled with roots. The plants should never be placed in direct sunlight but brought to the light gradually. The hyacinth has the misfortune of being overanxious to grow, and occasionally the flowers develop so rapidly that the spike cannot get out of the bulb, or sometimes the leaves have grown so fast that when the flowers open the spike is down among them. The Dutch hyacinths may also be grown in pots of soil, in which case they are given practically the same treatment as the narcissi, care being taken that in planting the tips of the bulbs protrude just above the surface.

The Roman hyacinths are bulbs of the easiest culture, and success with them in pots of soil is more uniform than with the Dutch hyacinths. The bulbs are small, but many spikes of flowers come from each bulb. The flowers are loosely arranged along the spikes, giving a more graceful effect than the stiff Dutch hyacinth. They should be given the same treatment as other bulbs, but may be brought indoors sooner than the Dutch hyacinths.

Tulips and other bulbs may be grown indoors, but results are not as satisfactory as with those described.—*Missouri Botanical Garden Bulletin.*

WINTER PROTECTION FOR SMALL FRUIT PLANTS

SMALL fruits should not be permitted to enter the Winter unattended. This class of food producers is grown in practically every garden and still little attention is given the plants. Strawberries, raspberries, gooseberries, blackberries and currants are for the most part a hardy lot. They will grow and bear fairly well with a minimum of attention. It is probably for this reason that the plants are neglected to such an extent. Their thriftiness, however, says the *Stanford Advocate*, should not cause any gardener to neglect the plants. Good growth and fair crops of fruit are not the points to consider in small fruit culture. It is bumper crops and healthy, sturdy plants that should be desired.

Before cold weather closes in there is considerable work that should be attended to. The more carefully this is done the larger will be the production of the plants. Those plantings overrun with weeds need cleaning of them. With the brambles and bush fruits growing in relatively large areas it is best to plow out the central space between the plants, turning the furrows away from the rows. Then, with a grub or other hand tool cut out the grass and weed growth so as to free the rows of noxious plants and leave no harbor for the mice. Before the ground freezes up for the Winter the furrows must be turned back toward the plants again. All sucker shoots coming up between the plants in the rows should

be cut away unless some of the stronger of these are wanted for Spring planting.

In the case of strawberries such grubbing is impossible, but a hand hoe should be used to cut any grass or weeds that may be in the rows between the plants. Many culturists leave their strawberries unheeded until Spring, but this should never be done when there is time for the work in Fall. Plantations left for Spring clearing are usually neglected for other work and the crop becomes greatly reduced as a consequence. In Fall hoeing be careful not to cover the hearts with soil or unduly disturb the plants. If the bed is comparatively free of weeds then this hoeing can be left undone. Some plant food should be given the plants in the Fall and a protecting material applied soon after the ground freezes.

While properly pruned brambles may stand alone through even the most inclement weather, the plants are better off if given support. By erecting supports in the form of stakes or trellises it is an easy matter to tie the canes to them and prevent their breaking or becoming misshapen from the loads of snow and the sleet. While this supporting is not always practical in the commercial planting, it is entirely so in the home garden and should not be neglected. The supports need not be expensive or ornamental. A single wire or two stretched along the row will suffice admirably. The wire should be placed so as to give the plants the maximum support.

Many of the small fruits need Winter protection. Currants and gooseberries are ironclad and need no top cover. Blackberries of most varieties are very hardy. But the raspberries of many sorts are better for a covering at the tops. When this is done the plants can be bundled up, that is, several canes tied to a single stake or at one point on the trellis and covered over with straw, salt hay, cornstalks or other protecting material. Sometimes the canes are turned down to the ground and there covered until Spring with litter and soil. When the more tender brambles can be protected in an upright position it is not advisable to turn them down to the ground.

All the small fruits need mulching at the roots. This stops the alternate freezing and thawing which frequently produces such disastrous results. If the mulch is of manure then the plants are fed at the same time they are protected. The manure should not be worked into the soil, but left on the surface. Broadcast it for a distance of several feet on all sides of the plants instead of immediately surrounding the main stems. Long strawy manure, or that which is half rotted, is preferable to well rotted manure for mulching the small fruits.

In mulching strawberries be careful not to apply too much material over the crowns of the plants. A covering two inches deep of fairly light, loose material is better than a thick mulch, for too thick a protection may smother out or devitalize the plants. Between the rows, the manure or other material may be applied several inches thick without harm.

Only a short time remains to put the small fruits into condition for Winter. While the mulch about the roots may be applied at any time after the ground has frozen the other work should be done now. The sooner it is attended to the better. Next season's small fruit production is dependent quite as much on the Fall care of the plants as on the Spring and early Summer operations.

Work for some good, be it ever so slowly;

Cherish some flower, be it ever so lowly;

Labor! all labor is noble and holy;

Let thy great deed be thy prayer to thy God.

Frances S. Osgood.

Work for the Month in the Garden

SAMUEL GOLDING

Within the solemn woods of Ash deep crimsoned,
And silver beech, and maple yellow leaved,
Where Autumn, like a faint old man
Sits down by the wayside a-weary.

Longfellow.

THE Autumn is drawing rapidly to a close. There are indications on every side that the garden will soon be in the grip of Winter and we have already experienced a foretaste of its icy hand, which has robbed the borders of flowers. The trees and shrubs, which have vied with each other in their gorgeous and exquisite coloring of foliage and berry, have now lost their brightness and are prepared for their Winter's rest.

It remains to us to gather in the remaining crops and to give the more tender plants adequate protection, so that we can look forward with perfect assurance to welcome them again next Spring. All root crops must be brought in without delay. The celery which is now our most important crop, should be lifted and stored away into its Winter quarters before very severe weather sets in. It can, however, be wintered outside, providing it is given adequate protection, which can be afforded by being well earthed or banked up with soil; then covered with other protective material as conditions demand, dry leaves, salt hay, and corn stalks are good, with some boards placed over them in such a position as will throw the water off. They can be lifted and placed close together in one trench, for more convenience in handling, but when left in their growing position undisturbed until wanted for use they retain that desirable nutty flavor, and are crisp and firm to a marked degree.

Cabbage can be placed in a trench upside down or in a conical heap, and covered with dry leaves and straw to prevent frost or water reaching them. They will keep when treated in this manner for quite a long period.

Lift seakale, chicory, rhubarb, and place in a cool place where it can be taken out conveniently for forcing in successive batches during the Winter. They come away more freely when brought into heat, after being exposed to some frost. Take in some horseradish and lay in soil to be on hand when wanted for use during the Winter months.

Beets, carrots, turnips, should be packed away in sand to prevent shrivelling. Lift enough parsnip and salsify to carry over until Spring. These vegetables are improved by being left in the ground, and if enough covering is placed on the land to prevent the ground becoming too frozen, they can be taken up when wanted for use.

Onions should be cleaned and spread out thinly, or tied in ropes by their tops, and hung in a convenient place in a frost-proof shed. It is an excellent way to winter them.

Gather a supply of protecting material to cover the strawberries. Some judgment must be exercised when to apply this protection. No date can be set, but one must be guided by the climatic conditions prevailing. It is best to apply this after the ground has frozen up. Rough litter, leaves and cornstalks can be used.

Protect globe artichokes early. Place some brush over them and cover with rough litter. Keep plenty of salt hay over the endive that remains outside.

Pay constant attention to crops growing in pits and frames; give abundance of air whenever the conditions are

favorable, water very carefully, and remove all decayed foliage. Cauliflowers that were lifted and placed in the frames last month will now be turning in, and will make a welcome addition to the now short list of vegetables.

The mushroom beds will now be in full bearing. When they show signs of exhaustion they can be watered with tepid water in which a handful of salt has been dissolved. Collect more material to replenish the beds, as they cease to be profitable.

Plant deciduous trees and shrubs while the weather remains open. Lift any gladioli, montbretias, cannas or dahlias that may have been overlooked. Store away in a cool place. Some people find montbretias somewhat difficult to keep right through the Winter. If any failure has been experienced when lifted in the Fall, try leaving them in the ground, and use a heavy mulch of leaves. These are flowering bulbs that are deservedly growing in popular favor.

Any herbaceous plants that are prone to die off during the Winter should be lifted and placed in a cold frame. The tritonias and border chrysanthemums are as a rule better off when placed under this protection. There are many other things which come through some Winters quite well and die off during apparently mild conditions or when snow is light. Place canterbury bells, *Myosotis*, *Bellis*, pansies in the frames before very severe weather is here.

Cut over the herbaceous borders. Rake, clean up and burn all leaves and rubbish and throw the ashes on the garden as it is a good fertilizer. Collect all stakes and supports and store away for future. Make preparations for the protection of the more tender subjects. Arrange windbreaks around rhododendron beds, box bushes, etc., in case of a sudden visitation of severe weather.

Cut back the long growths of the roses, which prevents injury from heavy winds. Draw up soil around the base of the teas and hybrid teas, and in exposed places set wire netting around the beds. Cover the ground with leaves when the ground has become frozen.

During the month of December the work in the garden mainly consists of preparation for next year's work, and seeing to it that the plants have ample protection to carry them safely through the long resting period on which they have entered. If material was gathered during the mild days that have passed, it will be on hand in case of a sudden emergency. It is a mistake to cover or give protection to many of the fairly hardy plants too soon, but when we get into December severe wintry weather must be looked for and guarded against. Many hardy plants will suffer if covered by a wet heavy manure, especially so if their foliage persist above ground. When protecting these plants use dry leaves, salt hay, or rough litter, and cover over with brush to keep in position in such a manner that the air can penetrate.

Throw up plenty of soil around the base of the roses. In some districts it pays to lift and bury the plants and transplant again in the Spring; this is always the safest way to treat the standards. If the laying in is not practiced a covering of dry leaves helps to bring them safely through, although the mice sometimes take up their abode there and may badly bark the plants. When the soil is

(Continued on page 318)

The Greenhouse, Month to Month

GEORGE F. STEWART

WE have now come to a season of the year when the greenhouse will give more enjoyment to the owners in the way of cut flowers and plants than during the Summer months. I am well aware that outdoor trees and other plants have a charm all their own, even in Winter, to the artistic and observant mind, yet for brilliant and rich color in this part of the world we have to come to the greenhouse in Winter. When chill November's surly blast blows field and forest bare, it feels good to get out of the chill a few minutes occasionally, and see some of the flora of another part of the world, and I believe that was primarily the idea of glass structures.

I have very little patience with some of our friends, who lately are inclined to have a fling at the greenhouse as a thing of no interest. Indoor and outdoor gardening both have their place, and I think he is a very one-sided gardener who has not a good knowledge of both. I am very thankful that all the gardeners I worked under, as a young man, urged me strongly to be well posted in all matters pertaining to an estate, and a few of them, should I mention their names, had a national reputation on both sides of the Atlantic as all 'round gardeners. Some of us know how hard it is to get a well posted young man for greenhouse work nowadays and I hope that the course in our colleges to train young men as gardeners will in the course of time produce results in that line.

Late November and early December will find the chrysanthemum season about over, except for a few late varieties. We now will have our minds made up as to what varieties we will stick to for another season. Stock plants of these should be cut down to about three inches above the soil. We find, if one has no room in the coolest greenhouse, they can be stored very well in a cold frame, which can be made frost proof by lining the sides with leaves and using mats and shutters over the glass. In a frame with no heat in it, advantage must be taken of all the light and air possible being admitted into the frame; and dustings of air slaked lime, powdered charcoal, and occasionally a little flowers of sulphur given the plants. Keep them on the dry side until the young growths break through the soil. Fumigate the frame at intervals of nine or ten days with tobacco in some of its forms that are common on the market. So far we have found Hall's "Nicotine Fumigator" (powder) the handiest and best. Cuttings of the varieties which we mentioned in a previous article, as being put in about August first, begin flowering about Thanksgiving and continue until after Christmas. They are about a foot high, and as stated in said article, are grown twelve cuttings to an eight-inch pan. We find these about as useful as any chrysanthemum grown the whole season.

Camellias are now loaded with flower buds and if large flowers are desired, thin them out to one bud. Some of the early varieties are flowering with us. We have a plant which has been in the Lyman family for about one hundred years, a cream-colored one; I do not know the name of it. This plant commences flowering early in October, and is the first to flower with us, an excellent variety, but somewhat delicate at the roots. I believe it would do better grafted on a strong grower. The old *Camellia* *lanceolata*, which in my opinion is the finest

variety of all the Camellias, also begins flowering with us the end of October. Forty degrees at night during Winter in my experience suits them best. They, however, may be grown as high as fifty degrees if required to flower early. This is the best time to pot camellias, if they need a larger receptacle, but they should never be overpotted; they never in my experience do as well as when confined to a small pot and fed with stimulants. I hear a great many complaints about camellias being in a sickly condition and invariably it is due to overpotting and careless watering. The reason that I advocate potting camellias at this season when they apparently have completed growth, is that I find the roots begin to be very active long before any sign appears of growth on the plant. As a rule I have found that while flowering the young roots are starting all round the ball, and being easily broken, it is better to have them potted just as soon as growth is completed. Camellias grow well in either peat or loam. They flower better when grown in loam, but peat gives a better lustre to the foliage. Weak rooting varieties do better in peat. The loam or peat must be fibrous, as if it is in a fine condition it will soon become sour and useless. The poorest plantsmen I ever worked under were great advocates of putting all potting material through a fine sieve. When potting a plant the compost should be as rough as can be conveniently worked around the ball without leaving air spaces. The more fibre in the potting material the better. Use about a third of good sharp sand in the compost for camellias, and a good sprinkling of broken up charcoal. Be sure there is no lime in the soil, as I have found that these plants have no use for it. Pot the plants quite firmly, as solid as the ball of the plant, for if this is not done the water will pass too freely through the new compost leaving the old ball dry. Water the plants carefully and never allow them to get into a wet, soggy condition. Camellias are subject to all kinds of insect pests, but we find they are easily kept clean by using Hydrocyanic gas one half ounce to the thousand cubic feet. There is a black smut that also collects on the leaves sometimes, and, of course, the only way to clean it off is by sponging.

If good, strong, large plants of the Lorraine type of begonias are wanted for next year, select a batch of good, healthy, strong leaves and give them a clean cut across the stem. Get them with stems about two inches long if possible. We have found they root best in a shallow bed of cocoanut fibre with a little powdered charcoal mixed through it. Give them bottom heat around 80 degrees and maintain it steadily if possible. Space the leaves so that they do not touch one another and keep them up clear of the bed, only having the end of the leaf stem inserted in the fibre. If they are likely to tip over, take a short piece of copper wire and push through the leaf into the bed which will steady them. If the bed is thoroughly watered, it will go quite a long while without requiring any more. The leaves do not take long to root, but we have found it better not to disturb them until they throw up the young shoots from the bottom of the leaf stem. The other *Socotrana* tuberous rooted hybrids root in the same manner as the above.

Calla lilies will now be well rooted in their pots. Give them plenty of water and scatter a handful of bone meal

over the surface of the pot. It is astonishing how quickly they make it disappear. Waterings with manure water will also help them.

Plants of *Erlangea tomentosa* are now flowering with us and will continue all Winter. Feed them well and keep them in the shadiest part of the greenhouse. The nice lavender color will not be so likely to bleach out.

Those who wish Cyclamen plants for Christmas, better let all the flowers come. If they are pot bound, stimulate with Clay's fertilizer and soft coal soot water. Keep a night temperature around 55 degrees on cyclamens that are wanted for exhibition in Spring, pick the flowers until the turn of the year and keep them in a cool light airy house. We have seen lately beautiful plants in ten-inch pots grown from seed sown one year past August. Be careful about feeding plants at this season as the sun is low and growth is not very active.

Tropical plants are better without any stimulant until active growth commences and very little shading until the sun gets higher.

Rondeletia speciosa major, a native of Havana, is just passing out of flower. It is a good time to prune it into shape, and when the young breaks appear, give it a shift if it is pot bound. A good fibrous loam is suitable with a third of nice flaky leaves and sand to keep it porous. Avoid lime with this plant.

Luculia gratissima is another fine plant when in flower towards Fall. It does best planted out in a light position in the greenhouse. Prune it back hard after flowering. This plant is a native of Nepaul, where the temperature is said to be cool and humid. There is some difficulty found by some in propagating this plant. Keep a stock plant, and when cuttings are desired, put it in a higher temperature where it will soon make fresh growths. Select the short twiggy shoots and keep them in the warm house, where they will root quite easily if not allowed to wilt, which, if they do, one might as well throw them out. This plant grows best in loam and peat with sand enough to keep it open.

Clivias can be forced if wanted in flower early. There are now quite a number of fine varieties of this beautiful subject.

Nerium (Oleander) should be kept rather dry until Spring and placed in a cool position with plenty of light. If wanted to flower well next year, never remove the young shoots that surround the flowers. When they get straggly and bare, of course, a good pruning is in order but the following season they will not flower so well.

Cymbidiums are now quite popular among orchid growers and there are some fine hybrids. When showing their flower spikes, they should have plenty of water. They are strong rooters and like plenty of pot room and good drainage. Give them all the light possible at this season.

Cattleyas of the *Labiata* type, when past flowering, may be potted if they need it. We have found, however, that this orchid does not like to be disturbed too often at the roots.

Odontoglossums should now have all the light possible. They are in different stages of growth, and those making their growths and rooting freely, will need plenty of water; but always keep in mind it can be overdone. Look out for anything pertaining to the snail family. They can be trapped by scattering around lettuce leaves.

Strawberries that are wanted for forcing should get about ten degrees of frost. They may then be stored in cold frames until needed for forcing about January first.

Keep enough fire in the late grape house that will allow for a free circulation of air all night as well as all day. I believe in pruning grape vines as soon as the leaves

drop. If this is done, I have yet to see any bother with the vines bleeding.

A course of reading for the Winter will be of great value to any gardener. Every day he comes in contact with intelligent, well educated people and it will be to his advantage if he can discuss any subject that may come up in an intelligent manner. I do not for a moment mean him to confine his reading to subjects pertaining to horticulture.

EUCCHARIS AMAZONIA GRANDIFLORA

John S. Doig

EUCHARIS AMAZONIA GRANDIFLORA is one of the most beautiful and decorative of the lily family but is very little grown. A few private growers flower it successfully; and if given the proper treatment, it will bloom as profusely three or four times in one year as shown in the illustration. It thrives best planted in a bench filled with a rich compost consisting of good fibrous loam, cow manure, and bone meal.



Eucharis Amazonia Grandiflora.

It should be given plenty of water and liquid cow manure when the plant is well developed. The secret of producing flowers is to give the plant a rest from water at the proper time or stage of its growth, and that is as soon as the leaves are fully developed. Never try to rest them when the young leaves are shooting up or half-developed. Also keep it thoroughly shaded from the sun. This plant does well in a house with cattleyas or in a fern house.

When resting the young flower buds will shoot up, and then it is time to commence watering again, sparingly to start with and increasing the supply as the flowers are cut or fade away, as then the young leaves will be pushing up. When these are half-developed, commence feeding.

There are sixty-two spikes in the small lot planted in a bench two and a half by four feet, an average of five flowers to a spike, or altogether three hundred ten blooms.

Live for something! Do good, and leave behind you a monument of virtue that the storm of time can never destroy. Write your name in kindness, love, and mercy on the hearts of thousands you come in contact with year by year, and you will never be forgotten. Your name, your deeds, will be as legible as the stars on the brow of evening. Good deeds will shine as the stars of heaven.—Chalmers.

Flowers of Autumn and Spring

WILLARD N. CLUTE

IT seems never to have been definitely settled whether Summer or Winter is to be credited with the greater influence on the production of flowers. Summer, it is true, is regarded as the height of the blooming season, but it requires only a cursory examination to perceive that flowers have a marked tendency to cluster about the colder parts of the year. The expression "leafy June" rather aptly describes, not only the period when the sun is highest in the heavens, but several weeks thereafter. At this time, flowers are undoubtedly scarce in comparison with the number at other seasons of the year. But as the days grow shorter and a certain crispness in the air speaks of frosts soon to come, a rising tide of bloom submerges the Summer's leafiness and spreads in a riot of color over the countryside, being especially noticeable in the cool lowlands.

It is commonly imagined that the flowers of Autumn are belated species which have neglected to bloom at a more propitious season and are caught by the cold as a just penalty for their slothfulness, but this is far from being the truth. The Autumn-flowering species are adapted to the season; indeed they appear particularly designed for it and are at no disadvantage because they bloom so late. In ordinary years they finish their blooming and ripen their seeds before Winter has had a chance to interrupt the orderly working out of their life processes. They anticipate the season, prepare for the cold, and are ready for it when it comes.

Again, as Winter wanes, a new wave of color sweeps over the landscape, but though it reflects the tints and hues of the Autumn season it is in no sense a continuation of it. The component species are very different plants and not the older species whose blooming period has been slackened by the icy hand of the frost. They are sturdy plants which have learned to capitalize the inhospitable conditions and bloom when other kinds are unable to do so. The Spring flowers are largely buttercups, violets, legumes, roseworts and the like—simple plants with large, open, regular flowers. The blossoms of Autumn are produced by the highly developed composites and their allies such as asters, goldenrods, sunflowers, gentians, and bellworts, with specialized, irregular flowers, usually small as to size but great as to numbers.

The Spring flowers are further distinguished from those that blossom later by their fondness for woodlands, copes and other sheltered places, and by the rapidity with which they spring up in the wake of retreating snowdrifts. The Summer and Autumn flowers are more deliberate species that favor the open places such as roadsides, river-banks, meadows and swamps, where they spread a multitude of broad leaves to the sunlight and bury the earth in vegetation. In the most leisurely manner they build up the structures that are to provide the material for the flowers and fruits later in the season. The vernal flora is composed of those more provident plants whose habit it is, in late Spring, to store up underground in tuber and bulb and rhizome, a supply of plant food against another blooming season. Thus equipped they are able to spring almost instantly into bloom when a few mild days betoken the end of Winter.

In the warmer parts of the world, this vernal season is inconspicuous or absent altogether. Spring in such regions is chiefly marked by a fresher color in the foliage. The flowers come out one by one much as the stars appear in the sky at the close of day. Our southern States though boasting of a magnificent flora later in the year, have no

such burst of bloom as characterizes the early Spring in the States along our northern border. This particular flora is in a real sense the gift of the cold; a sort of recompense, possibly for the privations endured during the more inclement season.

Thus it happens that in the northern States, at least, there are two rather distinct floras, intermingled but rarely mixed, for each has its own time of blooming, its favorite form of blossom, its particular method of growth and its own selection of places in which to grow. There is some overlapping, to be sure, during that part of the year when one group is finishing its blossoming and the other just beginning, but in the main, they are fairly distinct. The fondness of the bulbous plants for the woodlands, is in all probability due to the fact that they possess reserve supplies of food. For a short time in early Spring the forests provide ideal places for the growth of these plants unhampered by the crowding Summer flowers. Here they can spring up and complete the cycle of their lives before they are lost in the deepening shadows. After the leaves are spread so much light is cut off that only a small number of shade plants can thrive in such places. The fine flowers of late Summer and Autumn are not found in the woodlands. Nor can we discover at this season any trace of many of the plants whose blossoms made the Spring woods gay with color. Long before mid-Summer they have thrown off their leaves and often their roots, but deep in the soil a new set of flower buds, surrounded by sufficient stores of food wait for the coming of a new Spring.

WORK FOR THE MONTH IN THE GARDEN

(Continued from page 315)

thrown up around the base, it may prevent possible injury from these pests.

Suitable protection such as canvas, burlap and wind-breaks should be placed around energreens which are liable to suffer from cutting winds and frost. Specimens such as retinosporas and trees of that habit that are likely to be broken down by the weight of snow, should be made secure by poles set around them and tied with stout string.

Single specimens of box may be entirely enveloped with straw. Give the rhododendron and azalea beds a good mulch of leaves after erecting the wind screens.

Lay raspberries and blackberries down and cover with soil if the position in which they are grown is very exposed, otherwise they can be tied up and protected with straw.

See to it that celery wintering outside has abundant protection. It oftentimes occurs that during a heavy wind-storm much of the covering is blown away. When there is a good covering of snow this is prevented and they are kept secure.

This is the logical time to replenish all stocks of pea brush, bean poles and flats for raising the early seedlings, and get under cover a good supply of compost. If the fallen leaves of two seasons ago were collected and placed in a heap the leaf soil would be invaluable now to take under cover for making up next Spring's compost.

Continue to bring in successful batches of rhubarb, etc., for forcing. Inspect at frequent intervals stocks of fruit, potatoes, etc., and remove any that show signs of decay.

During mild and open weather the pruning and thinning of old fruit trees can be done in the orchard and Winter sprays can be applied.

Departments of Foreign Exchange and Book Reviews

CUTTING AND PACKING FLOWERS

To cut flowers and pack them at once is a mistake, especially during hot days, when much of their moisture will have been evaporated, and they are liable to lose the rest by bleeding or absorption. If the flowers are to be sent away early in the morning they are best cut overnight and placed in pans or jars of water, and they should be cut in the morning and similarly treated if they are to be dispatched in the evening. They will thus be perfectly fresh and their stems charged with moisture. Roses especially should not be packed in a full-blown state; to be really serviceable when they reach their destination, they ought not to be more than half-blown when cut. Most other flowers should be fully expanded, and should be cut as soon as that stage is reached. It is only a disappointment to send anyone a quantity of single Pelargoniums, as, unless these are gummed, they are certain to fall to pieces, and there are a few other single flowers that are not much better in that respect. Water Lilies, which are so much prized, should be cut and packed when the buds are just bursting, and those receiving them must open the petals with the hand. The Iris family should also be packed in a bud state; Primroses, Snowdrops, Pansies, and other small flowers are best bunched, and thus they will be found to preserve one another. Many err in being too cautious—do not, in fact, pack the flowers close enough. The lid ought always to fit down tightly, as the flowers are certain to shrink somewhat, and, being laid flat and closely, are not so easily crushed as may be imagined. There is no better packing material than clean fresh Moss, and no worse than cotton wool, which robs the flowers of their moisture, sticks to them, and spoils their appearance.—*Gardening Illustrated*.

HOW TO ARRANGE CUT FLOWERS

The art of arranging cut flowers does not seem to keep pace with the rapidly-growing demand for flowers of all kinds. In the majority of decorations and bouquets far too many flowers are used, quantity seeming to be thought to make up for lack of arrangement. Even in establishments in which professional decorators are kept, we have frequently been surprised at the lack of originality shown as regards combination or arrangement, while in villa residences, and even cottages, one often finds exquisite taste displayed. To what excellent use is the common Ivy put by some, who, having but few flowers, are compelled to make the most of what they have. Associated with a few common Ferns in hanging baskets, Ivy lasts for months in ordinary windows or corridors. Such sprays, too, are useful in Winter for entwining over the handles of baskets containing cut flowers. Baskets, too, filled with fresh, green Moss, require only a fraction of the flowers usually considered necessary to fill either them or vases satisfactorily.

There can be no doubt that overcrowding is the greatest of all evils in regard to cut-flower arrangement, and unless one has a firm base, such as sand covered with Moss, the flowers press too closely on each other. Unless every flower has room to stand out clear of its neighbors, the arrangement cannot possibly be perfect. Small vases, dishes, or baskets look most striking when filled with only one variety of flower. Even in mixed vases three colors are more effective than a larger number. The free use of foliage is one of the greatest safeguards against over-crowding, and, as a rule, nothing suits a flower so well as its own foliage. The old notion of garnishing everything with Maiden-hair Fern has happily, to a great extent, gone out of fashion. Maiden-hair is very transient, and soon gives a worn-out look to the flowers, the beauty of which it is intended to enhance. Very large vases must have flowers and foliage in proportion.—*Gardening Illustrated*.

DRY WALL GARDENING

One of the most interesting and fascinating forms of gardens is a dry wall furnished with suitable plants. Either a terrace wall, or what is often a troublesome, sloping bank may be made one of the most beautiful features in a garden and also a source of pleasure the greater part of the year.

It is essential to plant the wall as it is being built; to build the wall first and leave spaces for the plants to be inserted later is to court trouble, as the plants more often than not in such circumstances prove failures.

A dry wall may be formed at any time of the year, and furnished with plants turned out of small pots and pressed between the stones filled in with good soil, composed of loam and leaf-mould. This will hold the moisture better than anything else. Good sandstone cut to a suitable size and thickness is the best material. The stones should be slightly sloping inwards as this will help to retain the moisture and keep the soil in position. Groups of plants from six to twelve of each kind or variety give a good effect, the plants being put in from twelve to eighteen inches apart. Care should be taken to intermix the early, mid-season and late flowering plants judiciously to give an even display throughout the season the whole length of the wall. The plants should be given a thorough soaking before turning them out of the pots. The following will be found a useful and interesting collection of plants for a dry wall and will flower from April until September: Aubrietias in variety, *Alyssum saxatile compacta*, *Arabis*, single, *Arabis fl. pl.*, *Acacia microphylla*, *Acacia adsurgens*, *Achillea Herba-rota*, *A. tomentosa*; *Ethionema grandiflorum*, *Campanula muralis*, *Campanula garganica*, *C. g. hirsuta*, *Dianthus cæsius*, *D. arenarius*, *D. deltoides*, *D. dependens*, *Erinus alpinus carmineus*, *Erysimum pulchellum*, *Cheiranthus Allionii*, *Gypsophila prostrata*, *Helianthemum* in variety, *Helichrysum bellidoides*, *Heuchera sanguinea*, *Hippocrepis comosa*, *Hutchinsia alpina*, *Iberis* "Little Gem," *Linaria pallida*, *Linum flævum*, *Phlox setacea* in variety, *Ranondia pyrenaica* (for shade), *Saxifragas*, incrustated varieties, *Sedums* in variety, *Sempervivums* of sorts, *Thymus serpyllum coccineum* and *album*, *Veronica Bidwellii*, *V. rupestris*, *V. prostrata*, *Zauschneria californica* and *Z. splendens*, *Arenaria balearica*, *Arenaria montana*, *Coronilla iberica*, *Dianthus graniticus*, *Campanula carpatia*, *Iberis gibraltaria*, *Iberis corrafolia*, *Plumbago Larpenæ*, *Aplopappus chrysophyllus* and *Androsacea lanuginosa*.

Bulbs may be planted freely on the top of the wall, and these will give a fine effect in Spring when in flower.—*The Gardeners' Chronicle* (British).

IS THE HOLLYHOCK DECLINING?

Is the fungoid growth to which Hollyhocks are susceptible, and which makes its presence felt more particularly on old plants, by an early rusting away of the leaves, the reason why they are seen less frequently in gardens than they were thirty and more years ago? Possibly this may have had a deal to do with the decline of this one time popular florist's flower. The mistake made by those who used to grow Hollyhocks, and who have since given them up because of failure through the prevalence of fungus, seems to me was of treating them as perennials and allowing all and sundry suckers to remain, the result being that the original plant, developed into a colony of plants, filching from the soil most of its nutriment very quickly and rendering the plants an easy prey to the rust disease. Hollyhocks, when well grown, are such noble and attractive plants for the back of a border, or for grouping, that it seems a pity their popularity should be on the wane. I think if we treated them more as biennials and gave them fresh quarters, in medium soil, rendered rich with rotted manure and decayed vegetable matter, we should hear less of disease. I feel confident that the biennial treatment of the Hollyhock is the only sure and safe method to overcome the dreaded fungus. Hollyhocks are best planted at the back of herbaceous borders, since they lose their bottom leaves when attacked by this disease, which gives the plants a very untidy appearance when planted alone in beds.—*The Garden*.

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Boston, Mass.: Robert Cameron, chairman; W. N. Craig, temporary secretary, Brookline.

Western Pennsylvania: Manus Curran, chairman, Sewickley; Henry Goodband, temporary secretary, Sewickley.

DIRECTORS' MEETING

A meeting of the trustees and board of directors of the national association was held at the American Museum of Natural History, New York, on November 9, the following members being present: President Robert Cameron, William N. Craig, George F. Stewart, Massachusetts; James Stuart, Alex. Michie, H. E. Downer, New York; Arthur Smith, D. L. Macintosh, M. C. Ebel, New Jersey; William Gray of Newport, R. I., and J. H. Francis of Cleveland, O., president for 1923.

J. H. Francis of Cleveland, elected to the office at the Boston convention, having since his election retired from the profession to engage in the commercial field.

After a general discussion of the affairs of the association, the members became the guests of the New York Horticultural Society at the judges' dinner, as it was the opening day of the Fall Show of that society.

AMONG THE GARDENERS

Ewen Mackenzie has secured the position of superintendent on the Nicholas Brady estate, Manhasset, L. I.

B. Gamster succeeds Mr. Mackenzie as gardener on the Morton H. Meinhard estate at Port Chester, N. Y.

William Eccles succeeds John H. Francis, who has entered the commercial field, as superintendent of the F. F. Drury estate, Cleveland, O.

Alfred Hall succeeds the late A. H. Wingett as superintendent of Allen Winden Farm, Lenox, Mass.

SOME SIDELIGHTS ON THE CONVENTION

I never had such fun in my life; no, never since I was born. Old and young, they laughed and sung till almost daylight in the morn. As soon as I boarded the steamer for Boston, I knew I was in for a good time. Miss Ebel saw to it that everybody made themselves at home and made the best of the trip to Boston. Well, we had all together a glorious time, just like one large family, and discussed all the topics of the day, from the weather to who is going to be the next President.

When we reached Boston, friend Craig, with a staff of assistants, was on hand to welcome us. After a hearty breakfast at the hotel, those of us who are on the board of directors had to get to work at once.

On Wednesday, after electing officers and deciding where to go next year, and disposing of a vast amount of routine business, we foregathered in the banquet room. Let me say that was some banquet. You have already read in the CHRONICLE what most of the speakers said, and I think the most unwelcome speech of the evening was the president's, when he told us to go home and go to bed so as to be there early in the morning.

Thursday was a grand morning. There were rows of cars waiting for the members, their wives and sweethearts. All started in good time except a few young ladies, who did not care to ride with the male gender and who placed themselves in a beautiful limousine and waited for the chauffeur to come. Like the Maids of Lee, they waited. When the chauffeur came, he brought his employer along with him, who happened to be a bank president. He said he was sorry to disturb the girls, but as he had not been asked to the convention, he would have to ask the girls to get another conveyance, as he had to use his car for business. Of course, the young ladies got another car and soon caught up with the rest of the party. I have no doubt but that they had a very good time.

One peculiar thing about this outing was that when we left Boston we were about one hundred and fifty strong. By the time we got to Castle Hill Farm, we were two hundred strong. Seems to me that between Boston and Ipswich the people know what sort of a spread Mr. and Mrs. Crane can put up. By the time we got to the shore, there were about another fifty waiting.

Castle Hill Farm is something like its owner and its superintendent. It is too great to describe. It would have been one good day's work to have seen everything in that place alone. There were quite a number of people at the clam bake who had evidently never seen anything like it before. The conversation between two ladies sitting beside me was something like this: "What do you think of this?" "Oh, it is glorious. But there is sand in the clams." "Why, yes, that is expected. If there isn't any sand in them you are expected to put some in so as to sharpen your teeth."

There was one thing in particular which impressed us at Castle Hill Farm; that was the formal garden, which frankly showed that annuals and perennials and ordinary bedding can be used together to very good effect. As a matter of fact, in the writer's opinion, any perennial garden can be kept up effectively throughout the flower season with the assistance of annuals and the ordinary bedding plants.

We were happy to meet and sorry to part, and we shall ever be happy to meet again.

D. L. MACINTOSH.

LOCAL SOCIETIES

TARRYTOWN, N. Y., SHOW

The 24th annual exhibition of the Tarrytown, N. Y., Horticultural Society was held November 1, 2, and 3. The chrysanthemums harmonized with the Autumn foliage and the exhibit, while not as large as in former years, was of superior quality.

The hall was a bower of flowers beginning with the beautiful setting on the stage of an exhibit of palms and flowering plants by William B. Thompson of Yonkers, continuing in beauty to the rear of the hall with roses, chrysanthemums and other flowers and decorative plants.

In front of the stage was a beautiful exhibit by F. R. Pierson, of roses, including a particularly fine vase of "Francis Scott Key" roses, chrysanthemums, ferns and palms, which received Honorable Mention.

Beautiful exhibits were received from Mrs. F. E. Lewis of Ridgely, Conn.; R. C. Colt and Stuyvesant Fish of Garrison; H. H. Rogers, George F. Baker, J. Insley Blair and Mrs. H. M. Tilford, of Tuxedo Park; Mrs. J. I. Strauss and Mrs. Moses Taylor, of Mt. Kisco; D. E. Oppenheimer and Samuel Untermyer of Yonkers; H. Sidenberg of Hastings; R. A. Strong and E. E. Smathers of Port Chester; Clarence Whitman of Katonah; Frederick P. King and Hugh Hill of Irvington; H. E. Rogers of Scarborough; H. L. Van Praag and J. I. D. Bristol of Chappaqua; and Dr. Joseph A. Blake, Dr. C. C. Brace and Mrs. J. S. Halle of Tarrytown.

An elegant vase of roses, "Hill's America," exhibited by Charles H. Totty Company and a fine vase of roses, "Commonwealth," exhibited by A. N. Pierson of Cromwell were much admired.

Among the gardeners who were successful competitors were Joseph Tansey, Charles Ruthven, John MacIntyre, A. Strachan, J. D. Smith, Harry Jones, A. G. Williams, William J. Sealey, William Ellings.

BOSTON'S AUTUMN SHOW

At the annual Fall show in Boston on November 4 and 5, the display of cut flowers and specimen plants was much smaller than usual. Groups of chrysanthemum plants arranged with foliage plants and Autumn foliage were a leading feature. Harold Graham, superintendent to Loren D. Towle of Newton, made a very pleasing garden of chrysanthemums and foliage plants, covering nearly one thousand feet; undisbudded plants were mainly used. The same exhibit had the best specimen blooms in the exhibition, both as to long and short stems.

James Marlborough of Topsfield, superintendent to Thomas E. Proctor, showed some of his wonderfully grown English Winter flowering begonias. "Emily Clibran" and "Orange King" were over four feet in diameter. Peter Arnott, superintendent to E. I. Webster, Chestnut Hill, had a large and beautiful group in which such Winter flowering begonias as "Roselind," "Exquisite," "Emily Clibran" and others were largely used.

Allen Jenkins, Isthmian Gardens, Shrewsbury, led with twelve varieties of vegetables. Miss M. R. Case of Weston won the silver cup for groups of vegetables and native fruits covering fifty square feet, each arranged for effect. These contained many unusual and interesting varieties.

Orchid groups from Loren D. Towle and E. B. Dane (Donald MacKenzie, super-



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intendent), were beautifully arranged and contained many choice varieties.

Charles H. Totty of Madison, N. J., lectured each afternoon of the show on hardy chrysanthemums and showed specimens of many of the sorts referred to. He had interesting audiences each afternoon.

FRANCIS J. (BUD) TIGHE

The many friends of Francis J. (Bud) Tighe, well known and popular greenhouse salesman, will be sorry to learn of his sudden death on the afternoon of November first.

Mr. Tighe has always enjoyed the best of health but on the day of his death he

stopped at a doctor's office for diagnosis of his illness and while there succumbed to an attack of acute indigestion.

Mr. Tighe, who was thirty years old, was born in Buffalo and since his graduation from Canisius High School in 1912 has been connected with the King Construction Company, first as manager of the New England territory and later manager of the western New York, western Pennsylvania and Ohio territory.

During the World War, Mr. Tighe saw service in France with the Thirteenth Regiment, U. S. Marine Corps.

He is survived by his mother, sister and two brothers.

NEW YORK HORTICULTURAL SOCIETY SHOW

The annual Fall show held November 8-12 at American Museum of Natural History brought back to memory some of the shows of previous years. While not so large a revival of interest was quite manifest. The different groups, the specimen chrysanthemum plants, the orchids and cut flower classes of chrysanthemums, roses and carnations combined made a very attractive exhibit.

Among the principal prize winners were: Specimen Bush Chrysanthemum—Wm. B. Thompson (A. Strachan, gardener), Sam'l Undermyer (C. Mackay, Supt.).

Specimen Standard—Mrs. Herbert L. Pratt (J. McCarthy, Supt.), Miss A. De La Mar. Group of chrysanthemum plants, 100 feet square for effect, Mrs. Payne Whitney (C. Ferguson, Supt.).

In the cut flower classes—Sam'l Undermyer, Mrs. F. A. Constable (James Stuart, Supt.), Mrs. Herbert L. Pratt, Miss A. De La Mar, Mrs. Percy Chubb (P. Smith, Supt.), Mrs. F. E. Lewis (J. Smith, Supt.), were leaders.

In Pompons and Anemones, Mrs. Payne Whitney and Mrs. Charles Mallory (Wm. Sealey, Supt.), and Chas. H. Totty Company led.

In the Rose classes, cut flowers, Howard Cole (W. R. Fowkes, gardener), Mrs. E. Lewis, Countess Mildred Holnstein, F. R. Pierson, Chas. H. Totty Company, were the most successful.

In Carnations, Mrs. H. M. Tilford (Jos. Tansey, Supt.), Mrs. Payne Whitney, Mrs. E. Lewis, were the chief contestants. Group of foliage and decorative plants 200 square feet arranged for effect, Miss A. De La Mar. Display of Begonias, Glorie de Lorraine, Wm. B. Thompson.

In the Orchid classes Lager & Hurrell won in the collection of plants. In cut flowers Jos. Manda Co. A gold medal was won by George Baldwin Co. as a sweep-stake prize for the best seedling exhibit, a pink and crimson Cattleya.

In the vegetable classes Mrs. Herbert L. Pratt carried off the honors.

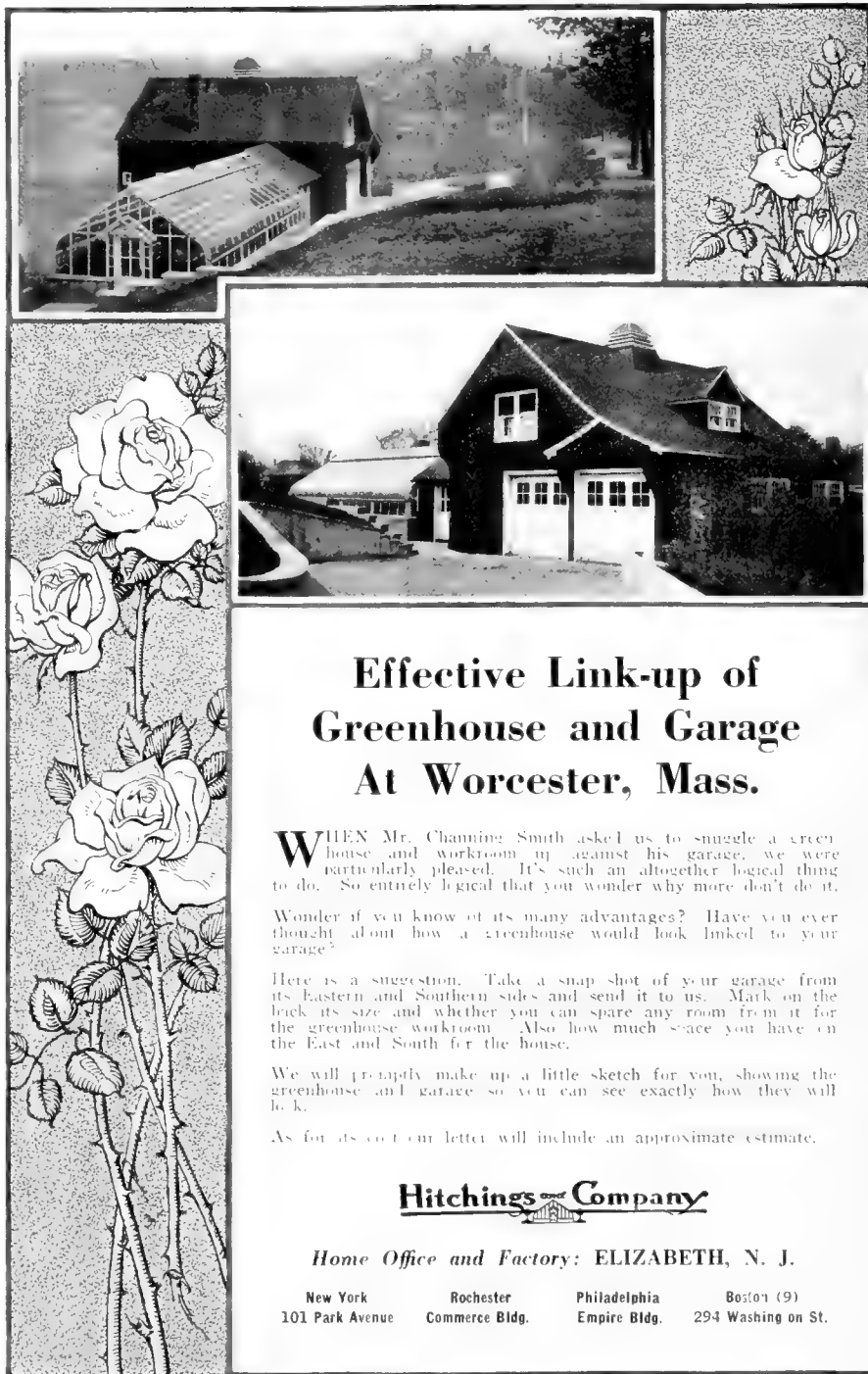
NASSAU COUNTY HORT. SOCIETY

Mrs. Herbert L. Pratt won eleven first and six second prizes in the annual chrysanthemum show of the Nassau County Horticultural Society, Glen Cove. One of her chief prizes was the silver cup offered by Stumpp & Walter for the best collection of twelve kinds of vegetables.

Mrs. Percy Chubb was a close second in winning awards. E. F. Luckenbach received the silver cup for the best twelve cut chrysanthemums, four varieties. Mrs. Percy Chubb, Miss Alice De La Mar and Mrs. Jennie Woolworth swept the prizes in the standard chrysanthemum classes. Mrs. Chubb's exhibit of a group of chrysanthemums, covering sixty square feet, was a beautiful display. Miss Alice De La Mar received the special prize offered by Charles Totty for the largest bloom in the show, a mammoth William Turner blossom, measuring thirty inches in circumference.

Mrs. George F. Baker, Jr., won for the best collection of twenty-five varieties of outdoor chrysanthemums, and Mrs. John T. Pratt had the best collection of twenty-five varieties of hardy pompon "mums." Mrs. Payne Whitney and Mrs. Herbert L. Pratt also scored in the hardy chrysanthemum classes.

In the rose section the principal winners were Charles A. Coffin, Mrs. Woolworth and Mrs. John T. Pratt, while the chief winners with carnations were F. D. N. Strachen, Mrs. Woolworth and Mrs. Payne Whitney.



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PEONY PLANTING IN WINNIPEG

"Plant a peony this fall" is being blazoned forth with electric lights from the highest point on the City Hall in Winnipeg. Already the slogan is producing results. Florists are besieged for bulbs, and hundreds of citizens have already planted their quota. The men in whose hands rests the policy of the city, all with one accord wish to make their city beautiful.

Canada is trying to beautify her cities. The west, despite its newness, its busyness, its utilitarian ideas, is even more determined than the more conservative east that it shall disguise its newness in flowers and shrubbery. One might wonder how Vancouver could be made more attractive than it already is. But the citizens are by no means satisfied. The houses in the more exclusive residential districts are covered with climbing roses. Fences are shrouded with ramblers, gardens are filled to overflowing with every variety of flower and plant which can be procured. Recently, too, a special flower was adopted for the city's emblem, the "General McArthur Rose"; and now it is the determination of the city that every house, no matter how small, nor in what secluded or congested suburb it stands, shall be covered with the General McArthur Rose by 1923.

In an age when men appear to be too much engaged in financial or research matters to have time even for the cultivation of international gardens of friendship, it is surely a most encouraging sign of the times that some city fathers should wish to plant roses and peonies. There is something in the thought that, while occupied with the task of making the bare places graceful with climbing roses, there is no time for finding fault, for thinking unkind thoughts, for arguing about municipal politics.—*Monitor*.

America, thou gavest birth
To light that lighteth all the earth,
God keep it pure!
We love that onward leading light;
We will defend it with our might;
It shall endure!

America, on-pressing van
Of all the hopes of waking man,
We love thy flag!—
Thy stately flag of steadfast stars,
And white, close held to heart-red bars,
Which none shall drag!

America, faith-shadowed land,
Truth dwells in thee, and truth shall stand
To guard thy gate.
Its planted seed of potent good
Shall grow to world-wide brotherhood,
Man's true estate.

America, the God of Love,
Whose name is ev'ry name above,
Is thy defense.
'Tis thou must lead the longing world
From phantom fears, to Love's unfurled
Omnipotence.

—ALICE MORGAN HARRISON.

REPOTTING ORCHIDS

Orchids in general are best repotted after the plants have finished flowering, for at such times new roots develop. After repotting, the chief aim of the cultivators should be to get the plants re-established as quickly as possible, and this is best accomplished by keeping the compost on the dry side. If the cultivator will look after the roots of his plants, the tops will look after themselves, provided they are kept clean and placed in suitable quarters.

The basis of a good Orchid compost should consist chiefly of Fern rhizomes; or,

rather, the fibrous portions of them, from which all the finer particles of soil have been removed.

Different Orchids require different material, but most will grow quite satisfactorily in a clean, open mixture of any of the different fibres now used for the purpose, with live Sphagnum moss on the surface.—*Exchange*.

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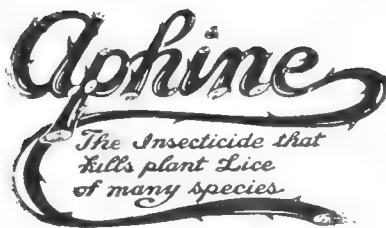
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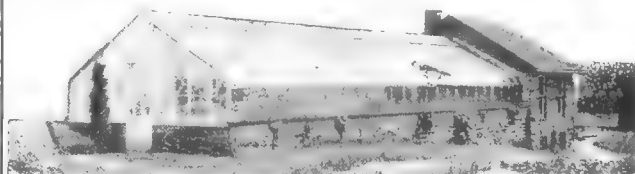
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVI

DECEMBER, 1922

No. 12

Things and Thoughts of the Garden

WILLIAM N. CRAIG

CHRYSANTHEMUM culture both outdoors and under glass is seriously menaced by the European corn borer. The spread of this destructive pest is somewhat slow, but steady. Like some other dangerous pests it was introduced not on live plants; in fact, the powers that be can merely guess as to how it landed here. In addition to working on corn, it has this season destroyed much of the celery produced for the Boston market, and dahlias, gladioli, zinnias, asters, and one or two other garden favorites are commonly attacked. One chrysanthemum grower in Arlington, Mass., lost \$7,000 worth of flowers this season, and the end is not yet. What with the midge thrip, aphid, leaf miner and sundry other pests and diseases, the Queen of Autumn has its share of foes. A point to remember about the corn borer is, that it thrives on numerous weeds; in fact, it has been found on at least two hundred different plants, and the burning up of stubble and all dry refuse matter is one of the best ways of preventing its spread.

I was pleased a few days ago to come across a batch of that one-time popular flower, *Thysacanthus rutilans*, now called *T. Schombergkianum*. No doubt many of our readers will remember this bright and pretty Winter flowering plant, a native of Colombia, which is of shrubby habit and produces great numbers of long racemes, the flowers on which are tubular, scarlet in color and pendulous. I cannot but think that on private estates some of these might well be seen in addition to such plants as *Centradenias*, *Libonias*, *Sericographis* (or *Jacobinias*), *Linums*, *Goldfussia* (*Strobilanthes*), *isophyllus*, and others which might be named. Not long ago hardwooded plants were in but a few hands; we see a steady increase in the culture of camellias on private estates while ericas, *Daphne indica*, and others are all coming back into favor. Of course, those of us who live near the seaboard or in the uplands where Summer's torridity is tempered can grow these better than our friends further inland, but experience has clearly shown that there is a much larger area than imagined where hard wood succeeds, and I look to see a coming back into favor of some of the softer-wooded subjects named also.

This has been a great year for dahlias; never did they bloom more abundantly or longer. The number of varieties is absolutely bewildering and senseless, and those catalogue men who have the courage to prune their collection of the various types to a dozen varieties each are

to be commended. The craze for mammoth flowers persists. Personally, I fail to see much decorative value in these monsters. In nearly every case these big varieties look better cut than on the plants; in fact, many of them cannot be seen at all on the plants. What we need more than anything else is a strain of dwarf or medium height which will throw flowers well above the foliage. Give us plants of such a strain as this, and it will be of some value in the flower garden. At the same time, reduce the size of the flowers. At present we have really no dahlia adaptable for culture in either a formal or natural garden, the singles and cactus come nearest to filling the bill. It looks as if there might be considerable food value in the roots, and if present experiments of the government prove encouraging, we may see big dahlia areas planted for this purpose in the not distant future. But in the meantime, call a halt on the big flowers, and give us something with more grace and beauty.

Some thirty years ago when we were growing such old-time carnations as *Anne Webb*, *Astoria*, *Ferdinand Mangold*, *Portia*, *Grace Wilder* and *Hinzes White*, I was much troubled with cutworms outdoors, and, after resorting to hand picking and various sprays, I at last concluded to try a dressing of gas lime amongst the plants which stopped the work of destruction in short order, and to any who are badly troubled with this and other soil pests, I would say, apply a dressing of this gas lime now, and if the soil remains open, work it in with a cultivator or rake. You will not only make the soil obnoxious for cutworms, the destructive white grub which is the larva of the May beetle and other pests, but there is no better remedy for club root on members of the *Brassica* family. The gas companies will usually give you the lime for the hauling, and if the patch to be treated covers, say, half an acre, use fifteen hundred or two thousand pounds of the gas lime. Try it and be convinced.

Celery blight has been unusually rife this season, and both private gardeners and commercial growers have sustained heavy losses. Those who persisted in the use of home-made Bordeaux Mixture, five pounds of copper sulphate and five pounds of lime to fifty-four gallons of water and sprayed weekly had little disease. Those who neglected to do this, lost a large proportion of their crop. Celery is such an important garden vegetable that it is worthy of a little extra effort to keep it healthy. There is less and less celery each season kept outdoors on private

estates, now that labor is scarce and high. It entails a great deal of extra labor to bank up, protect, and dig celery in the open. In a warm Winter, it is likely to sweat and rot; mice and rats will gnaw at it if there is not a good frozen crust of earth protecting it beneath the mulch. If we have an early Spring, it will spoil much more quickly than celery well packed in a good cold cellar.

* * *

For forcing under glass, what is the best head lettuce? This is a question often asked. Boston is a great center for lettuce culture under glass, many acres being devoted to it. Practically three varieties only are grown today, viz., May King, Hittinger's Belmont, and French Unrivalled. Personally, I like the last-named best of all. The difficulty with May King is that, while it heads beautifully, it is very likely to burn at the edges when headed up, if a very clear sunny day follows several dark days. May King, however, is still grown more than any other sort. Golden Queen, one of Sutton's varieties, I believe, of a pale color, has given good results. We customarily think of lettuces as somewhat shallow rooting vegetables and that twelve inches is a fair depth for roots to go down. Mr. Hittinger of Belmont, a noted lettuce specialist, told me several years ago that having occasion to cut a drain across one of his mammoth lettuce houses, he found lettuce roots four and a quarter feet long, and he believed that they would have gone even deeper had soil conditions permitted.

* * *

At our Summer and Fall exhibitions we frequently find classes for collections of vegetables arranged for effect, and the group at the Museum of Natural History Show in New York last month from James McCarthy was undoubtedly the finest single exhibit at that excellent show. How rarely do we see a class provided now-a-days for a collection, say, of twelve varieties of fruits arranged for effect with suitable decorative material? Surely we have ample material for such a class in greenhouse and open air grapes, peaches, plums, nectarines, figs, apples, pears, Autumn fruiting strawberries and raspberries. The Massachusetts Horticultural Society has added such a collection class for a great vegetable and fruit show to be held on September 28-30, 1923. Cannot other societies be induced to do likewise? Properly staged collections of fruits, such as are seen at the great English shows, are always stunning features, and we should easily be able to duplicate them here with our greater fruit facilities.

* * *

The November exhibition of the Rhode Island Horticultural Society, combined with a number of other kindred bodies, held in the state armory, Providence, November 17-20, brought out one of the grandest fruit displays I have seen in a long time. Various associations and fruit firms put up large and very comprehensive displays which were arranged most artistically, with all exhibits named and the country of origin marked in addition. Over 100,000 people viewed the exhibition, and the wonderful fruit collections far outclassed the floral exhibits in interest for the general public. Surely one or two honorary displays of this kind should add interest to any of our Autumn exhibitions. In one collection, I noted fruits from California, Florida, Oregon, Canada, the eastern States, Hawaii, Jamaica, Honduras, Italy, England, Belgium, France, Jaffa, Spain and Porto Rico. It would be hard to find an individual who would not enthuse over such a varied fruit collection as this.

* * *

When we look back a few years, it is surprising to note the advance in popularity of annuals for greenhouse culture. Sweet peas are probably the best known and the

most largely grown annual for forcing, while calendulas, mignonette, godetias, Clarkias, bachelor's buttons, sweet sultans, lupines, larkspurs, and many more also are grown. Nemesias have become extremely popular, and justly so. There are few annuals which cannot be cultivated successfully indoors, and our commercial friends make use of stocks, candytuft, and *Gypsophila elegans* for Memorial Day trade. A variety which makes a good pot plant and can be flowered by making successive sowings from November until June, is *Statice Soworowe*. A friend who made a sowing late in the Summer, planted a couple of benches with it, and these will be in bloom for Christmas. This pretty lavender-pink colored everlasting makes a pleasant addition to the not too varied list of available flowers for the holidays.

* * *

It has been a wonderfully clear and open Fall, very favorable for many who have but a limited fuel supply on hand. We may get severe snow and ice storms at any time, and all true garden lovers fail to do their full duty if in such times they do not feed our best friends, the birds. Pieces of suet or fatty meats, securely fastened to trees are much appreciated by many, and may save some valuable little lives. Bread crumbs, scraps of meat, or small mixed grains, with some grit added, will also be enjoyed, and it will not be so much labor to clear a piece of ground of snow and give our feathered friends a daily repast. We are well rewarded for any little efforts and expense by watching the pleasure of the twittering birds, and later on they will repay us many fold for helping them.

* * *

Our evergreens are now coming in for their annual mutilation. I am not referring to those on private estates which can be classed as reasonably safe from vandals, but take a walk or drive on any pleasant Sunday in December, and note how many automobiles are carrying their loads of spruce, cedar, mountain laurel, pine, or other conifers. The desire for Christmas decoration is natural and commendatory, but the increasing depredations of auto vandals in our woodlands and fields is a scandal. Too bad that these, in common with other law-breakers, could not have a taste of the old cat-o'-nine-tails. It is only the nice, shapely cedars, pines, or spruces which are cut for Christmas trees. The ill-shaped ones are left to grow up for timber. With forest areas gradually diminishing, something must be done to curb and regulate this traffic. It is a pleasure to note that many churches and individuals refuse to buy any mountain laurel, and that some retail florists refuse to sell it. May their numbers steadily increase!

* * *

How lovely it is these Winter days when snow mantles Mother Earth, to stroll in our northern woodlands! Some there are who fail to note the beauty which everywhere abounds, and who think that a greenhouse is the only place for the gardener in such weather. Greenhouses are interesting and pleasurable, and we need more of them, especially small ones for suburban homes such as we find so abundantly abroad. But why compare the floral beauties of the greenhouse subjects with the more truly majestic ones of our great outdoors? The man or woman who cannot see beauty, symmetry, strength, and vigor in the glorious American elms, maples, oaks, pines or birches, silhouetted against the sky, or cannot admire the great variations in bark colorings of many shrubs and trees is no true gardener and is to be pitied. We hear of many Spring, Summer, and Autumn field days, but how few there are in Winter! Personally, I see great

(Continued on page 334)

Combinations of Flowering Plants

ALLISON M. WOODMAN

MANY flowers—and I use this term advisedly, meaning the flower to be a combination of the plant and blossom—are attractive enough in groupings of the same variety or of several varieties of the same species, but some of the best effects are obtained when several species of flowers, frequently, quite different in appear-



Snapdragons can be planted freely in amongst Petunias (on the left). Pansies (center) are excellent for planting in the panel in the center of the garage drive, while Shasta Daisies make a splendid border plant.

ance, but having harmonious colors and fine texture of foliage, are placed in the same group.

A blaze of one vivid color is quite effective in flower beds located in large parks and extensive estates, but on small places it is in better taste to use flowers with soft tones that blend. White is a good intermediate color to use, often effecting a transition between two violent, contrasting colors. People are subject to decided temperamental tastes in grouping flowers. One person will demand the grouping of vivid reds and blues; another will show a preference for some other strongly contrasting colors. Many show an utter lack of sense in color values.

Nature seldom makes a mistake in her selection of colors within the same flower. There is a gradual gradation between colors, or, if distinct, they contrast well. Therefore, it seems quite useless to continually harp on the subject of selecting flowers solely for color combinations. Flowers with pronounced colors like orange, yellow, and brown, should usually be planted separate from other flowers. Flowers like Zinnias and Salpiglossis with vivid, bizarre colors had best be planted in separate beds, although flowers of similar character occasionally strike a special note in groupings.

A bed of Scarlet Salvias is a distinct novelty and is very striking if rightly located, but to avoid too glaring an effect, needs to be relieved by a background of lark green foliage. A few inserted here and there in the flower bed to supply a contrasting color creates a much more pleasing and less obnoxious effect than a single bed of Salvias conspicuously placed in the center of a lawn.

There are many kinds of flowers with "mixed" colors giving pleasing combinations when certain colors are eliminated. In a mixed planting of Snapdragons (*Antirrhinums*), for instance, bright yellows should be eliminated; flowers with delicate shades of pink, or with pink gradating to white, make good combinations. There is

considerable difference of opinion as to the merits of single or mixed colors in beds. The best seed companies make a practice of sending out only the best colors in mixed lots of seeds. A bed of mixed colors is not apt to be so monotonous as a bed containing flowers of one color. However, where there is sufficient room, a flower of one color often makes a very striking effect.

Foliage is very important to consider in grouping together certain kinds of flowers. Frequently, too little thought is given to character of foliage, and yet this is the one factor which prohibits the grouping of some flowers. Flowers with coarse foliage, like Dahlias, should either be placed in groups by themselves, or in the background of flower borders. Flowers with finely divided foliage usually have splendid grouping qualities. Dark green is to be preferred to yellow-green foliage.

Every type of flower has its own series of colors running through several or many varieties, which cannot be duplicated in any other type. It is amazing to consider the hundreds of different color tones to be found in flowers. Color and form are dominant over size in relative importance, with fragrance constituting a very desirable factor. In the most attractive flower form, color, and fragrance reach perfection in the same bloom.

Time of blooming is another important consideration. Considerable has been written on the subject, and, while planting tables are important, they cannot always be ab-



A fine example of naturalistic planting. The White Marguerite is a good intermediate plant to use between groups of flowers which might not harmonize in color.

olutely relied upon. Flowers follow certain seasons in their blooming periods, but there is no assurance just when they will bloom during the season. It is unreasonable to expect flowers to bloom out of season, but it is possible, by making successive sowings of seeds, to get some flowers to give successions of bloom. Cutting off old blooms is a great aid in extending the blooming period. Late Spring, early Summer, and early Fall are the three periods of the year when seasonal flowers are apt to be in bloom simultaneously.

The period of simultaneous blooming will usually be brief in duration, but it is quite possible that there will be an overlapping of bloom. Some flowers have a long blooming period anyway, and it is well for the beginner to use such flowers to form the nucleus of the flower bed. As a last expedient, it is advised that the gardener "take a chance" and experiment with different kinds of flowers, studying local conditions of soil and climate, until interesting combinations of flowers have been worked out. In



An Effective Combination of Canterbury Bells, Sweet Williams and Pinks.

my own experience I have discovered that gardening is somewhat of a lottery—combinations entirely satisfactory one season are disappointing the next. And strange to say, some of the most effective combinations have been brought about entirely by accident. There are such variations in soil and climate throughout the country, that what applies to one locality will not apply to another—which recalls the old injunction: "Work out your own salvation."

Flowers with soft tones blend together very well. A beautiful combination consists of Canterbury Bells (*Campanula media*), or the less coarse Peach Bell (*C. persicifolia*), in the background, and then in order, Sweet William, *Phlox drummondii*, with Pinks (*Dianthus*) for a border plant. Perennial Phlox and Tall Snapdragon, using similar colors, make a fine combination, both flowers coming into bloom about the same time.

When the perennial border is mentioned one naturally thinks of a border filled entirely with perennials, but it can be made more interesting by the addition of a few annuals, which serve to fill up gaps during blooming periods, to add variety, and to supply color in the foreground. They should be planted in such a way as not to leave a noticeable vacant space in the border when through blooming. The principle motive in establishing a flower bed should be to keep it in bloom as long as possible, and annuals are a very great aid in accomplishing this end.

Perennial Delphiniums, ranging in height from low forms to tall kinds, are very useful in the flower border, because of the striking inflorescence, and the almost equally attractive foliage of many varieties. They never

seem to intrude upon other flowers. Pink Snapdragons make a splendid showing when planted in front of Delphiniums. Yellow flowers also make a good showing grouped with Delphiniums.

Snapdragons might well be called a "buffer" plant among other flowers, for, if the varieties intermediate in size are used, they seem to harmonize with most flowers, and are a material aid in extending the blooming season. They are equally pleasing when massed together, bright yellows being eliminated, or when interspersed amongst other flowers. Clarkias can be combined successfully with Snapdragons.

Single Pctunias with Verbenas make a happy combination, the colors of both usually blending well, neither plant crowding out the other. Verbenas bloom a long time, make an effective ground cover, and make a colorful showing in the immediate foreground of flower borders. To prevent too straggly a growth they should not be watered too much. Asters can be planted behind Verbenas, or can be interspersed amongst late-blooming perennials with similar colors; Clarkias look well with Asters.

Some perennials because of their long blooming periods and blending qualities should be planted extensively in flower beds. Among these should be included; Pentstemon, Sweet William, Columbine, and Shasta Daisy. The Improved Scabiosa, sometimes called Mourning Bride, with finely cut foliage, and with blooms having light or deep shades of pink, red, lavender, purple, or pure white, create a delightful effect when interspersed here and there in the flower garden.

Zinnias and Salpiglossis, to my notion, are best placed in small groups by themselves, although quite effective when occasionally used as "accent" plants among other flowers. I have found it difficult to get Pot Marigolds (*Calendula officinalis*) to blend with other flowers, although especially effective, planted in front of evergreens. *Corcopsis* and *Calliopsis* should usually be planted in small groups, with some white-flowered plant inserted between them and flowers of different color. Blue Cornflowers can be planted with *Corcopsis*. French and African Marigolds because of their decided colors should be set apart from other flowers.

The above combinations of flowers are merely suggestive, for many more could be worked out, but an attempt has been made to describe groupings of flowers which meet with popular favor, and which are easy to grow.

SPRAYING FROZEN PLANTS

TOUCHING on this subject as mentioned on page 296: I am under the impression that the water must be absolutely ice cold, otherwise injury is aggravated, at least, when the subjects are exposed to the open air. On one occasion I ventured out very early and sprinkled a number of cordon and bush apples and pears that were in full bloom. The frost was so severe that I figured all the open bloom was certainly ruined but I took a chance and drew some water from the faucet. Believe me, almost as soon as the water touched the flowers the petals turned brown. When the sun got up and the frost disappeared, the trees looked as if they had been scorched by fire. I scarcely had a fruit on any of the sprinkled trees, and after that, I let the frost do its worst, preferring to remain in bed. Four A. M. on a frosty morning has no attraction for me unless necessity calls for it.—T. A. W.

Let us have faith that right makes might, and, in that faith, let us to the end dare to do our duty as we understand it. ABRAHAM LINCOLN.

What Shall We Plant for a Hedge Next Spring

FLORUM AMATOR

WHAT shall we plant for a hedge next Spring? The answer depends on whether we would like a hedge of thorny or thornless, deciduous, or evergreen shrubs or trees.

Let us assume that we should like a hedge of deciduous, thornless shrubs or trees. In these there is a choice, among those of suitable shape and size, between those notable for the beauty of their foliage especially, or for their flowers, or their fruit, or for two or all of these features combined.

If we are resting our choice upon handsome foliage chiefly, there are available several species of *Ligustrum*, privet. The best known and most widely used is *Ligustrum ovalifolium*, California privet. This shrub maintains the green color of its foliage well into the Winter and retains its foliage in a more or less green state in the latitude of New York usually until its new leaves appear early in the Spring and is therefore a semi-evergreen. Privet grows at its best in the East along the sea-coast and for about ten miles inland, from Massachusetts south. In sections where the temperature is always above zero, this privet is hardy, but in a temperature of ten degrees or more below, it is liable to be killed almost or quite down to the ground.

California privet should be set for a hedge in a single row, preferably in the Spring, about nine inches apart, and immediately after the shrubs are set, they should be cut back to within six inches of the ground. This privet should be pruned several times each season, and at each pruning cut back to within a few inches of where its newest growth started. It should not be allowed to increase in height more than six inches a year. The sides should be kept vertical as a projecting top shades the bottom of the hedge and discourages growth at the very point where density of the branches is most desirable. There is another species of privet which may be used for a hedge, namely, *Ligustrum ibota*, variety *regelianum*, which is said to be very hardy.

Passing from the half-deciduous, half-evergreen privets, used in hedges particularly for their handsome foliage, we find a long list of absolutely deciduous shrubs (that is, shrubs which drop their leaves as soon as struck by the heavy autumnal frosts) which are available for making hedges. Let us consider several of these. *Deutzia gracilis* is an excellent shrub for forming a low hedge. It bears pruning well, has a soft foliage, and in June is well covered with pretty bell-shaped white flowers. This *deutzia* is one of the most satisfactory of all low growing deciduous shrubs for a hedge.

Among the *Spiræas*, which are all deciduous, there is one variety very suitable for a low, and another for a somewhat higher hedge. The first is *Spiræa Bumalda*, variety "Anthony Waterer." In early Spring the new leaves which this shrub put forth often show to a considerable degree variegations of green, red, and yellowish white. Anthony Waterer produces continually pretty rose-colored flowers from June until October. Pruning into shape after each crop of flowers to the extent of cutting off the dry flowers and cutting back well at the time the branches which bore them, encourages rather than prevents blooming. This *spiræa* has also the merit of being notably free from insects. The other *spiræa* most suitable for a hedge is the beautiful white-flowered *Van Houttei*, which naturally grows to a height of about six feet but can be kept lower by pruning. It is a remarkably graceful shrub, and

is well covered with a wealth of pure white flowers in the Spring. When grace rather than severe regularity of form is desired in a hedge, *Spiræa Van Houttei* will certainly satisfy.

The several other species of *spiræa* suitable for a low hedge are, namely *Spiræa Bumalda*, the most dwarf of all, growing to a height of two feet, having pretty cut leaves, and producing rose-colored flowers through Summer and Autumn; *Spiræa callosa* growing to a height of about three feet, whose bluish green leaves are purple when young, and whose rosy flowers continue to appear almost throughout the Summer.

When a higher and stronger, but a thornless hedge is desired, we may plant out *Carpinus betulus*, European hornbeam. This tree, rather than shrub, whose oval leaves change from green to golden in the autumn and present them as well as when in their Summer color, a pleasing sight, makes an excellent hedge especially where a wind break is required and can be allowed to grow to any height for that purpose.

Fagus sylvatica, the English beech tree, and a variety of this, *purpurea*, whose leaves in Spring are a deep purple turning later to crimson, and in Autumn to a purplish green, make beautiful and strong windbreaking hedges.

Reverting to flowering shrubs which may be used for hedges, we have *Syringa vulgaris*, the common syringa, or as it is more generally called, lilac. Where a rather tall hedge is sought and regularity of outline is not regarded of so much importance as an abundance of handsome sweet-scented flowers, each May, this syringa makes a most satisfactory hedge.

There are several brier—or spine,—or thorn-bearing kinds of shrubs and trees which may be used as hedges either because their thorns restrain people or animals from passing through a hedge formed of them, or because, aside from this feature, they make by reason of their form, foliage, or flowers, an attractive hedge.

Berberis Thunbergii, Japanese barberry, a spine-bearing shrub, has many merits as a subject for a hedge. It transplants well, bears pruning sufficiently at least to keep it at the same height, is not inclined to grow tall, but has a somewhat spreading top and is therefore easily kept at a height of not more than three or four feet. Its delicate and pretty leaves in the Spring and its dropping racemes of yellow flowers are delightful to the eye. The beautiful red to which its leaves turn in the Autumn gives it a brilliant effect and the scarlet fruit with which this barberry is covered, not only throughout the Autumn and Winter, but well into the Spring, fairly dazzles the eye.

The several varieties of *Rosa rugosa* may be used in forming a hedge. The heavily furrowed leaves of this rose, which are almost evergreen, are a prominent feature and so are its spines. Its flowers, too, some white, others, red, some single, others somewhat double, make a brilliant showing and the orange red hips or fruits of large size, following the flower and remaining long on the bush, prolong the bright display.

Crataegus oxyanthus, English hawthorn, is a much larger growing subject than *Berberis Thunbergii* or *Rosa rugosa*, and has strong thorns. This shrub, or tree, has pretty foliage and single, white flowers, followed by red fruits which remain on late. There is a variety of this, *C. oxyanthus flore pleno*, which bears double white flowers. *Crataegus crus-galli*, cockspur thorn, is valuable for forming a restraining hedge. This is a native *crataegus*, posses-

sing very long, sharp thorns, and bright red fruits. It is very showy.

Cydonia Japonica, Japanese quince, also is attractive as a Spring hedge. Its brilliant scarlet flowers appear in great profusion in very early Spring and are followed by pear-shaped yellow fruits.

Gleditsia, or *Gleditschia triacanthus*, thorny honey locust, which is armed with thorns three to four inches long, is a rapid growing tree and makes a formidable hedge. Long twisted pods follow its flowers, and though so thorny, this tree has a delicate, handsome foliage.

Machira aurantiaca, Osage Orange, makes an impenetrable hedge when carefully set. Planted singly this grows into a medium size tree, but when used in a hedge, can be kept at the desired height. This tree is very spiny; has bright green leaves, which turn yellow in the Autumn, and bears inconspicuous greenish flowers, followed by inedible greenish yellow fruits. This has been much used as a hedge plant in the Middle West and is hardy as far north as Massachusetts.

Several species and varieties of *Thuja* make excellent evergreen hedges. *Thuja fastigiata*, or *pyramidalis*, has a compact dense habit of growth, a columnar form, and light green foliage. This is known as the pyramidal arborvitæ. *T. occidentalis*, the common American arborvitæ, has short horizontal branches, scaly, bright green leaves, with a yellowish under color; *T. occidentalis*, "Little Gem," is very dwarf, growing broader than high, and has dark leaves; while *T. occidentalis lutea*, known as George Peabody's Golden Arborvitæ, *T. occidentalis Warcana*, or *Sibirica*, has a pyramidal form, a dense and lower growth and stouter branchlets than the species itself, and glaucous green leaves. All of these arborvitæ are favorites for evergreen hedges, the choice largely depending on the desired height, the form of growth, and the color of the foliage.

Taxus baccatus repandens, English yew, will grow in almost any position and is the hardiest of all the prostrate yews. Its slender pointed leaves have an upward curve and are a lustrous green. *Taxus cuspidata*, or *capitata*, and *T. cuspidata nana* or *brevifolia* are both suitable for hedges. The species *cuspidata* keeps its fresh color all the year round, endures our severest Winters, and is an upright, fast grower. The variety, *nana*, has a rich, deep green, short foliage and a spreading growth.

Tsuga canadensis, hemlock, is a graceful, handsome evergreen. The pendulous, slender branches of the tree give to a hedge a soft effect not to be obtained through any other evergreen. It is an excellent evergreen for forming a wind break hedge.

Picea excelsa, Norway spruce, is a tree of pyramidal form attaining a height of forty to fifty feet, but is suitable for a hedge. The spruce has a handsome dark green foliage, is very hardy and makes, perhaps, the heaviest and tallest hedge of any of the evergreens.

Passing from the evergreens and conifers, we have available for a hedge two broad-leaved evergreens. The first is *Ilex crenata*, Japanese holly, which is a rapid grower; has small green, smooth oval leaves, and forms a compact, dense bush which, like boxwood, can be pruned into various shapes. The second is *Buxus sempervirens*, without argument one of the finest of all hedge shrubs and excellent for that purpose in a latitude and location where it will be neither killed by an extremely low Winter temperature or burned brown by Winter's winds or Summer's sun.

There are some factors in the problem of making a good hedge to which close attention must be given. The ground where the hedge shrubs or trees are to be planted should be dug up to the depth of two or more feet. A spread of stable manure, six to ten inches deep, should be thoroughly dug in and incorporated with the soil in the

Autumn, if the hedge is to be set in Spring, and *vice versa*. If this has not been done in advance, it is not advisable to use any stable manure just before setting the hedge shrubs for the roots to come in direct contact with, but to incorporate a moderate quantity of pure ground bone in the soil and to apply more of this on the surface after the shrubs are planted during the growing season and to rake it into the soil, or to apply sheep manure to the surface in the same way. These applications may be made several times from early Spring till mid-Autumn. After the ground is frozen a few inches deep in early Winter each year, a spread of stable fertilizer may be applied as a top dressing. This will keep the ground from alternate freezings and thawings.

Shrubs and trees of nearly the same height should be planted together in making a hedge. This is especially necessary in the case of some broad leaved evergreens such as boxwood, where to prune back severely to make the shrubs of the same height would be to cut back into the old wood and disfigure the shrub. The height to which it is desired that the hedge grow should be decided on approximately soon after the hedge is set. The hedge, however, in the case of larger shrubs and trees should not be allowed to reach its full height in one season's growth, even where that is possible, and perhaps not in several seasons. In most instances, in pruning, the new growth should be each time cut back to within a few inches of the old wood, but not to it. This method of pruning one or several times during the growing season, according as the shrub is of slow or rapid growth, keeps the hedge thick from bottom to top, and broad, and at the desired height. When once a hedge from neglect of pruning begins to grow its own way, it is brought back to the desired shape, if at all, with great difficulty.

It is almost impossible to formulate exact rules for pruning hedges but a good general rule is to have a vision of what we would like our hedge to be, and then to prune each time with care so that we may realize our vision.

RHODODENDRON MAXIMUM

THE only evergreen Rhododendron which grows in the northeastern states, with an extensive Appalachian range southward to Georgia, is one of the handsomest of the broad-leaved evergreen plants which can be grown in this climate. The flowers are pink and white or nearly white and, like those of some other late-flowering Rhododendrons, are more or less hidden by the branches of the year which usually make a considerable part of their growth before the flowers open. *R. maximum* grows well in any soil not impregnated with lime and flourishes in shade and when fully exposed to the sun, but when growing in open positions it is often seriously injured by the lace-wing fly which was first brought to New England on plants of this Rhododendron collected in the south. Hybrids of *R. maximum* and *R. catawbiense* hybrids have been raised. One of the earliest and best known of these hybrids, *R. delicatissimum*, has lustrous foliage and white flowers tinged with pink which open two or three weeks before those of *R. maximum* and are not hidden by young branches. This hybrid is one of the hardiest, handsomest and most desirable of the large growing Rhododendrons which can be planted in Massachusetts.—*Arnold Arboretum Bulletin*.

Efforts to be permanently useful must be uniformly joyous, a spirit all sunshine, graceful from very gladness, beautiful because bright.—THOMAS CARLYLE.

The most manifest sign of wisdom is continued cheerfulness. MONTAIGNE.

The Beautiful Christmas Tree

BERTHA BERBERT-HAMMOND

THE idea of using an evergreen tree as the chief symbolical decoration at the Yuletide festival dates back to ancient times. The practice spread from the Teutons to other European nations, and then to America, where the custom of using a gayly spangled, gift-laden evergreen tree at the Christmas celebrations is now the general usage, there being, according to statistics of the forest service of the U. S. government nearly five million young evergreen trees marketed at Christmas time, one and a half million of these being required to supply the demand of New York State and the New England States. These figures loom up large, and read without a wider knowledge of conditions would seem to indicate a great waste of our natural resources. Probably, if closely and coldly reckoned in terms of dollars and cents, our country's wealth would be slightly increased if so many evergreens were not annually cut down, but great wealth is not the only factor to be considered in this connection. The joyful anticipation, the great pleasure, and happiness that these Christmas trees bring to rich and poor, old and young, wherever the light of Christianity has penetrated compensate mankind a hundredfold for any pecuniary loss that may be the direct result of cutting the young evergreen trees. Moreover, many of the trees used have been raised expressly for the purpose, and growing them furnishes a profitable side industry. In some of our States the trees used at Christmas would be weeded out anyway as the land needs to be cleared for improvements, so that the number of trees that have been thoughtlessly sacrificed is proportionately small.

In the cutting of trees for the Christmas trade the rules applied in forestry must be observed. Trees that are not crowded should not be taken nor should tall trees that are the result of years of growth be shamefully mutilated by cutting out the tops. Evergreen trees on watershed areas also must be protected, but if only the surplus growth of the forest is thinned out, the cutting of the trees will be an advantage and not a damage to the woodland as the following experiment will attest: A year or two ago the Government Forest Service, as a trial, thinned out the young growth on about three acres of land belonging to the Pike National Forest, Colorado, leaving about 750 selected trees (whose growth was not hindered) standing on each acre of the land. With the impediment to their progress removed these trees having freedom will add greatly to the wealth of the forest and still the young, crowded growth cut out yielded to the government the sum of three hundred dollars.

Though in the past there has been much of the prodigality characteristic of Americans, our forests still cover about 550,000,000 acres, or approximately one-quarter of the area of the United States, and now that our people have awakened to the fact that forests are a National asset, and that it is high time to practice scientific forestry methods, for the protection and perpetuation of standing timber and for the reforestation of denuded lands on the millions of acres of idle land not adapted for agriculture, but quite suitable for the growing of trees, it is reasonable to believe that having learned the lesson the people of this progressive country will be quick to take measures for the maintenance and preservation of forests for their own benefit and that of future generations. But even so, it is possible for American families to enjoy the treat of a real Christmas tree, for forestry methods that do not provide for the use of trees are a failure, because they are not practical. Realizing how much true

joy humanity receives from Christmas trees, the evergreen trees required for that purpose could be put to no better use. One may admire the sturdy oak, the spreading elm, the symmetrical sugar maple, the fragrant linden, the graceful willow, the ornamental catalpa or erect Lombardy poplar, but prompted by tender feeling and fond association the thought remains that

Sing of this or that tree,
Growing here and there;
All around the world, dear,
Every tree is fair.
North or South it may be,
Maybe East or West;
But take them all in all, dear,
The Christmas tree is best.

And though the charming old custom of having a Christmas tree is one of deep sentiment and not of prosaic economics, the idea has increased in popularity, and has broadened until at the present time, in addition to the home tree, we have the out-door community tree. For this purpose a large, well-placed, symmetrically formed, living tree is selected, and its many beautiful, spreading, evergreen branches are wired for lighting with multi-colored electric bulbs, and decorated with glittering ornaments, while once a year at least the people of the community, catching the true Christmas spirit of universal unselfishness and "good will toward men," get together and join heartily in the celebrations. As long as this country and its vast wealth exists, nothing should allow the passing of the joy-giving tree without which Christmas would lose much of its charm.

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ELEAGNUS ANGUSTIFOLIUS

A TREE with silvery white foliage can sometimes be mixed with advantage with dark-leaved trees to produce contrast in the landscape, and for this purpose no tree which is hardy here at the north is so well suited as the Oleaster, as *Eleagnus angustifolius* is sometimes called. A native of southern Europe and western Asia, it is a tree sometimes thirty feet high, or a large arborescent shrub, with erect and spreading, sometimes spiny branches, and narrow lanceolate leaves up to three or four inches in length. The fragrant flowers are produced in few-flowered clusters in the axils of the young shoots and are nearly half an inch in length with a bell-shaped tube and four spreading lobes. The fruit is oval, half an inch long, yellowish and covered with silvery scales; the flesh is sweet and mealy.—*Arnold Arboretum Bulletin*.

"America is not to be made a polyglot boarding house for the money hunters of twenty different nationalities who have changed their former country for this country only as farmyard beasts change one feeding trough for another. America is a nation. No man has any right here and no man should be permitted to stay here unless he becomes an American, and nothing else."—THEODORE ROOSEVELT.

We live in deeds, not years; in thoughts, not breaths;
In feelings, not in figures on a dial.
He most lives
Who thinks most, feels the noblest, acts the best.

—FESTUS.

Early Spring Pansies

REFERENCE is made in the article on the pansies, translated from the German by F. B. M. to *Viola tricolor* which "through the course of many centuries," etc., etc. Assuredly the author was writing for the edification of the German people and maybe he meant to imply that the Fatherland was responsible for the modern pansy.

As a matter of fact, it was not until 1813 or 1814 that Lord Gambier and Thompson, his gardener, started out to improve the wild *V. tricolor* of Britain. Thompson carried on for thirty years, but it was not until 1830 that the regular blotched pansy was evolved. It was in the early 30's that the English pansy, as it was then, was introduced into France and Belgium, where the growers, heeding not the English ideal of the show types, developed what we now call fancy pansies. Probably the German fanciers did not take up the pansies until around the 50's, for the Belgian strain did not get back into England till 1858.

As to the violas, it is common news that these have held a leading position as bedders in Great Britain for the past 30 years or more; in fact, James Grieve was working with *V. lutea* and other species way back in 1860, and around that time *V. cornuta* came in for a boom, especially when the variety "Perfection" appeared in 1870 or earlier. Dr. Stuart introduced the rayless violas in the early 80's, these being from *V. cornuta* x Pansy "Blue King." Grieve did an immense amount of work with violas, all of which possessed *V. cornuta* blood.

These hybrids, of course, are larger and rounder than the *cornuta* type; in fact, they rival pansies for size and form. While some have the habit of pansies, the real bedding violas are compact, hence the name, tufted pansies. There are hundreds of varieties and the sales in England and Scotland total millions annually, all being propagated from cuttings.

Regarding the true *V. cornuta* type, "George Wernig," I think, was never anything more than old "Perfection." "Papilio" is not as good as "Lord Nelson," but all retain the smaller foliage and compact habit of the species. For compactness, however, the strain, *admirabilis*, is better, although the flower stems are shorter.

As to earliness, even a native American can smile at the thought of *V. cornuta* and its varieties being earlier than the pansy developed from *V. tricolor*, or the tropical viola. In England, it is common to find violas flowering before the Winter is over and pansies sown in late July in New Jersey will, in an open season, often be flowering before Christmas. Last year one grower lifted hundreds and sold them before Christmas, but *V. cornuta* proper certainly will not flower in anything like the same period.

Judging by the name, the so-called German *cornuta* sorts are nothing more than Winter blooming pansies offered here. These so-called Winter pansies, grown under the same conditions outdoors, will, I find, bloom a little earlier than the ordinary sorts in the Spring. I was aware they originated in Germany, although some are apt to think they originated in America, but I certainly did not know they claimed special relationship to *V. cornuta*. If they have that relationship, they are little better than mongrelized pansies and if *V. cornuta* is connected with them, it has been eclipsed by the pansy parentage, both in the way of habit and flower. None of them come anyways true to color and they vary in form. The only hint that *V. cornuta* is in them is their ability to bloom. I have a few, "Winter Sun," "March Wizard" and "Mars" (Celestial), on my rock work which have

bloomed from April till the present time. Straggly now, of course, but to compare them with the really good pansies is farcical. Under glass, they do, I believe, yield a crop in Winter, but that phase of growing pansies does not really interest me. As I am mighty particular as to the class of pansy which I grow, I certainly won't worry about the so-called Spring sorts, not while I can have real pansies and real violas.—T. A. WESTON.

SCENTED MUSK

FLORUM AMATOR appears to claim that the scentless musk is an improbability, and that what was formerly scented must of necessity be scented now. I am not familiar with any other plant formerly scented but now scentless, but I may mention that it is generally admitted that many modern roses, sweet peas and carnations are deficient in perfume compared with earlier forms. Cross breeding and striving after size and form is supposedly responsible, but with musk, no such offence has ever been committed. The perfume has simply vanished, and whether one raises seedlings or propagates by division, the results appear to be the same.—T. A. W.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 328)

beauty in trees and shrubs in Winter, and the deciduous ones which are so largely ignored at that time have many points of beauty which we would be well repaid for appreciating.

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Very common expressions are heard to the effect that a heavy fall of snow "is as good as a dose of fertilizer," and the "snow is the poor man's fertilizer" when it comes in Spring. That there is some value to both snow and rain water has been proved by F. T. Shutt, chemist of the Dominion of Canada in a recent report issued. The experiments were limited to determining the amount of free ammonia, albuminoid, and nitrous and nitric nitrogen. During the year seventy-nine samples of rain and twenty-five of snow were analyzed. The total precipitation amounted to 844 mm., of which 594 mm. were rain and 250 mm. were snow (10 mm. of snow equals 1 mm. of water). The total amount of nitrogen applied by these precipitations were 7,971 kilograms per hectare (a kilogram equals 2 lb. 3 oz., and a hectare equals 11,960.33 square yards). It was found that the total amount of nitrogen supplied by rain and snow over a period of ten years averaged 7,375 kilograms per hectare annually. This goes to prove that there is some fertilizing value in rain and snow, and perhaps accounts for the fact that many skilled growers always emphasized the value of rain water for such plants as ericas, exacris and orchids as giving them just the necessary plant food desired.

Learn these two things, never be discouraged because good things get on so slowly here, and never fail daily to do that good which lies next to your hand. Do not be in a hurry, but be diligent. Enter into the sublime patience of the Lord. Be charitable in view of it. God can afford to wait; why cannot we, since we have Him to fall back upon? Let Patience have her perfect work, and bring forth her celestial fruits. Trust to God to weave your little thread into a web, though the patterns show it not yet.—GEORGE MACDONALD.

Alpines Under Glass

THOUGH, in some quarters, a prejudice still exists against growing alpines in any other way than in the open air on the rock garden, there cannot be any doubt that alpine house culture for these beautiful plants is gaining fresh adherents every year. Artificial? Yes. But so is the rock garden, when compared with the free open mountain and pasture land, and a system of culture which provides such a charming effect during February, March and April as the alpine house affords does not merit much criticism. True, that everything is confined in a pot or pan and set in rows confined within four walls; but when so displayed the plants become individuals and less one of a crowd, so that their exquisite beauty and charm appeal with far greater force and are much more highly appreciated.

Though I have singled out February, March and April for special mention, do not let us overlook the fact that this is the flower time, and that by judiciously selecting the plants that are to be grown, the house may be crammed with interest, even as early as December, when, as a rule, the average garden has but little of interest to show. One is called upon to stoke no fire, so that cost is reduced to a minimum; one has no worry as to whether Jack Frost has nipped in and ruined the labor of months; while the house is left vacant just at the right time to fill up with tomatoes or Summer flowers, as the owner's fancy may dictate.

The questions arise: "What kind of house is the best for growing these miniature gems?" "What are the other necessary accessories?" and "When is the best time to start?"

The first essentials is that it should be a span roof building (preferably running north and south), not too lofty and right out in the open, so that it will not be shaded either by trees or buildings. It must be unheated. Let there be no doubt on that point: heat, even the gentlest warmth, is not only unnecessary, but positively harmful. Many and many a house that has been used as a greenhouse and that is fitted with hot water heating can be adapted by the simple expedient of not using the fire; but no heat must be used—that is final.

The sole object of an alpine house is to afford protection against rain, snow and wind, so that the longest possible period of flower perfection can be enjoyed, so that free and abundant ventilation is of the utmost importance. Too much emphasis cannot be laid upon this; a damp, clammy atmosphere being, with artificial heat, one of the two things which the plants will not tolerate. Bottom, side and top ventilators should be provided upon the most generous lines, so that night and day, unless under most exceptional circumstances, a current of air will be passing through the house, carrying away all superfluous moisture with it. The roof ventilators ought not to be quite closed at any time, those below the stage and at the side being used according to the state of the weather. A closed staging is best, consisting of a layer of slate upon which a couple of inches of coke breeze have been spread, though proper facilities must be provided for draining this or it will produce damp.

So much for the house and its fitment, but—in addition to this—provision must be made for the happiness of the plants at other seasons of the year, while they are not occupying the house. The most satisfactory, from the cultural point of view as well as saving labor, is an ash bed in the open ground where the pans can be sunk to the rim and so kept cool and moist.

This leads us, naturally, to the best period at which to make a beginning, the material to use, and general cultural management. Personally, I think there is no better period than Autumn, for so many plants can then be potted on, so many seedlings have made good progress and so many bulbs can be procured from the dealers, that one is sure of a very good display the first Spring. Apart from the consideration of bulbs and seedlings, however, there is no season, except the middle of the Summer, during which a good beginning cannot be made.

Of bulbs and tubers which can be planted during the next few weeks a special note should be made of the following: *Anemone blanda*, with its splendid starry blue flowers; *Anemone nemorosa Robinsoniana*, the finest and choicest variety of our Wood Anemone; Crocus species; Dog's Tooth Violets; *Fritillaria aurea*, and *F. citrina*, *Melegris*, *persica*, *pudica*, and *recurva*; Irises in a large range of species, such as *alata* (which flowers before Christmas) *Bakeriana*, *orchioides* and *reticulata*; and *Muscari* in both white and blue. Among the most charming plants of all are the miniature *Narcissi*—*cyclamineus*, *Bulbocodium*, *minimus* and *triandrus*; while, as brilliant companions, the little known but interesting dwarf Tulip species provide us with a host of pans for successional purposes. Everything in the way of dwarf bulbous rooted plants is very attractive and the flowers open in spotless purity under the glass protection.

Of other plants it would scarcely be possible to write exhaustively within the limits of an article, but Primulas and Saxifrages alone (to mention but two genera) would be sufficient to furnish a large house for many weeks with such a display of lovely blossom as few who have not experimented with indoor alpines would be disposed to credit. Just think for a moment of the various beautiful flowering "Saxies": the red "mossies," delicious alike in bud and blossom; the earliest tufted gems, such as *Burseriana gloria*; the *Megasea* section; and then the gracious encrusted forms. One can scarcely imagine a more dignified picture among all the wealth of the tropics than a fine example of *Saxifraga longifolia* in full flower. The great arching stem, rising one and one-half feet to two feet high, smothered with myriads of its white flowers, springing from a huge rosette of silvery foliage, forms a glorious picture indeed.

With Primulas, too, the story is the same, save that here is an even greater diversity of form, color and perfume. It is one of my dreams to possess a small house, filled entirely with hardy Primulas, in some future April and May that is to be and, when I do, I know that the result will prove that this is not the madness of an enthusiast, but that a real garden picture will result, a picture crowded with varying form, aglow with vivid color and crammed with interest to garden lover, flower lover and botanist alike.

But even yet we have not exhausted possibilities. There is still a mighty host of Achilleas, Adonises, Campanulas, Daphnes, Ramondias, Herberleas, Scillas, Sempervivums, Statice, Trilliums, Violas, etc., that are no less interesting or beautiful. From the end of May onwards, all the plants should be taken into the open again and plunged to the rim in the ash-bed where a couple of good waterings a week will be all the care that they need. Two of these ash-beds are better than one, although both must be in an open position and not overhung by trees. One must be in shade and another in full sun so that all classes

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The Greenhouse, Month to Month

GEORGE F. STEWART

THIS part of the year, late December, and early January, is on the whole better for greenhouse work than that covered by last month's notes. Although, as a rule, the weather is much colder and the wind more cutting, we have clearer atmospheric conditions and by the end of the first week in January, the daylight is easily seen to be lengthening. The ancients, who used lunar time, called this period their tenth month, hence the name December. The more devout and thankful among them called this "The good and excellent month," because at this period after the long drought the "latter rains" fell, and filled the cisterns and pools and watered the dry and parched ground. In this great western country of ours, we gardeners would be very thankful for "latter rains" falling here during December, filling our evergreens with plenty of moisture before Winter sets in. I am wandering into Mr. Golding's department, so I had better get back to the greenhouse.

At this season the greenhouse looks quite gay with color. The Lorraine type of begonia is at its best; so also the tuberous rooted *Socotrana* hybrids. We have noticed that several of the varieties of these can be kept flowering over quite a long period, if kept in a cool airy atmosphere and carefully watered. The Lorraine type I have kept well through March. Mr. Peterson of Cincinnati claims begonias can be kept in bud for a long time in a light cool house, and when wanted to open their flowers if taken into a similar house a few degrees warmer, will open out beautifully, and with a much better color than around Christmas. Begonias with *Socotrana* blood in them are certainly the finest hybrid plants I have seen since 1883, and no honor too great can be bestowed on such men as Lemoine and Heal for their pioneer efforts among the two distinct types of begonias referred to.

While we are speaking of valuable plants introduced for greenhouse purposes, *Asparagus Sprengeri* deserves, to be also placed in the front rank, both for cutting and as a pot plant. I remember some years ago talking with a one time gardener, he was then in the greenhouse business and also interested in quite a large nursery, who told me that while traveling in Italy, he saw the first of *A. Sprengeri* that came to Europe. It was in full fruit when he saw it, and could have been purchased for quite a small sum of money. If I remember rightly he could have secured the plant for twenty-five dollars. I asked him why he did not buy it. "I never thought it would take the market the way it has done," he said. As you may guess, he was Scotch, and you know, we are blamed for being cautious on the wrong side.

Sow fresh seeds of *A. Sprengeri* now; keep them well soaked with water until they germinate, and keep them in the warmest corner of the tropical house. Cover the receptacle they are sown in with a pane of glass until the first shoot appears, and then allow them to dry out considerably before watering again. Fresh seeds will germinate quite freely, but old seed will straggle along for two years, not coming even at all. A good plant grown in a basket in the full sunshine will give a private place all the seeds it requires, and besides, it is a plant of beauty grown in this manner. Small plants in six-inch pans are very effective for edging a group of plants, and are not as stiff looking as any of the *Nephrolepis* varieties of ferns

we often see used for that purpose. A good strong rich loam is all they need to grow in.

Any of the begonia leaf cuttings is better if potted in a suitable size of pot, when they throw up a shoot from the base of the leaf. Equal parts of flaky leaves (preferably beech or oak) and good fibrous loam with charcoal broken quite small we have found makes a good first potting. Personally I don't like sand in a potting compost for begonias, although others use it and grow fine plants. Any sand I have ever used in begonia growing has had a tendency to develop rust-like spots on the leaves.

Cyclamen seeds sown in August should now be ready for small pots. To good fibre of loam chopped small, and half decayed leaves that will break small when rubbed between the hands, add a little sand, and charcoal in a convenient size for small pots, also about a fourth of a spent mushroom bed. Place them close to the glass when potted and water carefully until they get established. Shade them for a few days until they stiffen up, that is, if the weather is bright.

This is a good time to root carnation cuttings. Several years ago we experimented with carnation cuttings taken from various parts of the plant. We found the following season that those taken well up the flower stem, even though they were rather short when taken off, produced during the whole season, and did not come in crops at intervals. These tests were made in an old-fashioned greenhouse which carnation enthusiasts of today would class as unfit to grow good plants in. I would not blame them very much, as it is uphill work to grow good plants of any kind in an old-fashioned greenhouse, especially in a poor location.

Roses may be also rooted now as well as any time. I believe better roses, and freer flowering, can be produced from flower stems of a medium thickness than by blind wood. The only drawback is the loss of the flowers. The same may be said of budding or grafting. Many plants can be improved, in fact, I am safe to say, all, by careful selection of the wood for propagation. The study of *Life*, whether animal or plant, the wisest of men are very much in the dark about. Let us pass around whatever we know or discover about plant life or growth. Life here is short. Eternity, do we grasp its meaning? After all, what have we, but what we have received?

Those who want to grow a few large chrysanthemum pot plants, put in cuttings in late December or early January. If rooted and shifted along as soon as the roots break through the soil, in the first potting and all later necessary shifts, very large plants in twelve-inch pots may be had in one season. In years gone by, we have had under our care plants with over one thousand flowers, from a cutting rooted about January first.

I wonder why one seldom sees a *Lapageria* now? In these days when there is so much floral decoration done on festive occasions, there is no plant that I know of whose sprays are more effective for mantle decorations. They are not at all hard to grow. A shaded cool house, or corridor, with a suitable bench, say fifteen inches deep and well drained; a compost, composed of *Osmunda* fern root, and fibre loam in equal parts, sand and charcoal to keep it sweet and porous; a liberal amount of moisture at the roots, and frequent light sprayings overhead; a temper-

ature never over forty-five degrees Fahr. in Winter, and one has ideal conditions for growing Lapagerias. After they are well established a top dressing of fresh compost as advised above once a year, together with liberal waterings with cow manure water, when in active growth, will keep Lapagerias, that are planted out, in good condition for years.

Years ago, I remember seeing a fine specimen grown in a tub with about three hundred open flowers on it. It was grown by a stonemason, in a small sash house attached to his dwelling. No fire heat was used in Winter. A few mats over the glass on frosty nights was all that was required for protection, but that was in Scotland.

Put in some cuttings of *Pteroma elegans*. If well pinched, they will make fine Summer and Fall flowering plants.

Our tub of *Eucharis Amazonica* is just throwing up its flowering stems. We just gave it a month's drying off, and shall water it well and give it plenty of plant food for the next three months and then repeat the drying off process. By this mode of treatment we have sometimes had three crops of flowers in a year.

Plumbago rosea is another plant that flowers around this season. At sixty degrees they can be had in flower for Christmas, and can be had for later use by holding them in a temperature ten degrees lower.

Keep Poinsettias at sixty degrees when opening their bracts.

Dipladenias should be resting, by keeping them quite dry at the roots, until the end of January, forty-five to fifty degrees is warm enough to winter these plants in. They start much stronger when the weak wood is trimmed off about the middle of January, if not kept over that temperature all Winter.

This is a good time to make up some hanging baskets for verandas or other suitable locations. Ivy leaved geraniums are first class for this purpose. They can be had in several colors. Trailing Queen fuchsias are also very effective. We root a number of small plants and arrange about a dozen round the rim of the basket. We tie a few up to a stake in the centre of the basket in the form of a pyramid, or train them round the hangers. We keep them pinched and tied until about eight weeks before they are wanted to flower, and then let everything come.

Keep the gardenia house at a temperature never lower than sixty degrees at night at this season five degrees higher will give you more flowers, that is, if one has healthy plants. Syringe very little at this time of the year, as bud dropping will be sure to annoy you, if the plants are left long with wet foliage. Keep them clean by careful fumigating with hydrocyanic gas. Keep the floors well damped until one o'clock in the afternoon, which, with careful watering, will give plenty of moisture until the sun is stronger. There is time yet to make another sowing of all the garden annuals that are usually forced, and there are many others that have as yet been very little tried out for forcing purposes in this country. Many will not grow well outdoors here in Summer, yet in a cool greenhouse, with our bright clear sunny days they force well and are fine for early Spring decorative work, where large quantities of flowers are required.

Calanthe veitchii and the earlier flowering varieties will be in flower. If arranged among foliage plants in the various shades of green, they are among the finest of flowering plants we have around Christmas. The variety *Sanhurstiana* is a gem and should be included in every collection of these orchids.

Lalia anceps also flowers around this season. The general complaint is that this orchid does not keep well as a cut flower, but there will be little trouble on this score, if

one scrapes the outer bark off the flower stems about seven inches up from the end of the stem, and also splits the same with a sharp knife several inches in length. After this operation place them in warm water for several hours. *Lalia autumnalis* has just finished flowering with us, and flowering at this season, it is very useful. These two orchids we find like plenty of light Summer and Winter, fifty degrees night temperature is high enough, but we find they open their flowers better a few degrees higher. The cross-bred orchids flower at all seasons and now fill in gaps in the flowering season that old-time orchid growers had to do by manipulation of shade and temperature. A good rule is to pot all orchids, that is, if they need it, just as soon as they show the slightest tendency to root action. We do not like to disturb any of them, unless the compost is spent, or the growths run over the rim of the receptacle. We find they like oak leaves in the compost, if cut up and used soon after they fall off the trees. There is also a close growing yellowish looking fibre which we find growing at the roots of the huckleberry around here, where oak is the principal tree in the woods, and they like it better than *Osmunda* fibre. One-third of good fresh live sphagnum should also be in the compost, and, of course, plenty of broken charcoal. The possibilities of sugar in the water, as a stimulant is very little known, but remember how it is found oozing out of the foliage of a vigorous growth of some of them. It makes one wonder and think a little along that line. We observed it first about fifteen years ago, but have never had the chance to experiment, as we would like. In our climate never keep evergreen orchids too dry, as our bright strong sunshine causes quick evaporation of the sap.

It is now time to start early fruit houses. Clean and top dress the borders of the early grape house. The easiest and best flavored grape to force early is undoubtedly Black Hamburg, which sets freely, and breaks even. Start the temperature around forty-six degrees and raise it gradually to sixty or sixty-five nights, after the border has been fed a little with the standard grape foods and watered. About every ten days raise the night temperature five degrees with a day rise of about ten degrees, but do not get ugly with your assistant, if once in a while it runs a degree or two high; no harm will be done, except to your peace of mind and health. Syringe several times a day at the start. Do not tie them up to the trellis until they break equal all over the vine. There is no danger of breaking the buds, if you keep calm, and are not in too much of a hurry.

Peaches and nectarines should be started in a similar manner, only keep the temperatures about five degrees lower and do not feed any until the fruit is set. This is better to be done artificially if no bees are around. Avoid draughts in any of the fruit houses.

Strawberries may also be forced now, and all pot fruits such as apples and pears. Strawberries do well in a carnation house temperature and apples, pears, etc., similar to peaches, but being in pots they require more feeding.

If you have plenty of room, and ample assistance, keep up a succession of all forcing vegetables. Sow every two weeks. Get a good book on forcing fruits and vegetables, as in these notes we cannot go into details, as much as we would like to. There is a good one written by Wm. Turner for this climate.

The only rational liberty is that which is born of subjection, reared in the fear of God, and the love of man, and made courageous in the defense of a trust and the prosecution of duty.—SIMMS.

Work for the Month in the Garden

SAMUEL GOLDING

DURING this season, the main work in the garden is to see to it that the more tender subjects are provided with adequate protection. Many of the most attractive and decorative subjects we have, suffer somewhat in popularity because their hardiness is open to question. The position and locality, of course, plays an important part in their successful culture. Some may be condemned solely because they may have been planted in an unsuitable position.

Regarding the varied subjects, some care should be exercised in providing suitable protection and to avoid as far as possible, using unsightly material. Spruce branches are well adapted and make excellent screens, and when they are available, are more picturesque, than corn stalks. Excellent though they are for wind breaks, they should be used in the less conspicuous places of the garden. Up to the time of writing (first week in December) we have been favored with exceptionally fine and open weather, which has delayed the final application of the protecting material. It is, however, practical to have everything in readiness, as these pleasant conditions may change with great rapidity.

It has been previously referred to in these columns that rough litter, leaves, pine branches, or other material through which the air can penetrate, is the best to use, especially so for the class of plants whose foliage persists above the ground during the Winter, such as Sweet Williams, Shasta daisies, Oriental poppies, Artemisia, etc. Experience necessarily teaches the amount of covering the various plants need. It is oftentimes more dangerous to give too much than when done in a sparing manner, especially so in the case of some herbaceous plants. Where too heavy material is used, if we get a mild spell during the early days of March, the plants may start into growth, and the young shoots will probably be injured when the covering is removed.

When there is an abundant snowfall, which stays throughout the Winter, it provides a blanket which cannot be surpassed, and plants winter so much better than when we experience a succession of frosts and thaws.

The rose bushes should by now have the soil pulled up around the base; allow the ground to be well frozen up before giving the final covering. If this is done before leaves are put on, the ground will remain hard throughout the Winter, and make a less pleasant abiding place for mice which are somewhat partial to the rose bed.

Conifers and shrubs which may be injured by weights of snow, should be well staked and tied to prevent harm. They should be well shaken after snowstorms to remove the weight.

The fine weather experienced during this Fall has been most favorable, enabling one to push on with outside work, and where advantage has been taken to dig and trench, or do necessary alterations, he will be well ahead when the Spring rush is here, in fact, the advantage gained is more lasting as more time can generally be devoted to doing it well, at this season.

The early pull has also prolonged the supply of vegetables; the Brussels sprouts, Scotch kale, and spinach have been able to continue their growth. It has also been fine weather for stocks in frames. As soon as the weather becomes too severe pull up the Brussels sprouts; pile them

together in some place, easy of access, and cover them with leaves or straw. Give the spinach a good mulch of salt hay. See that enough chicory, rhubarb, horse radish, parsnips, salsify, is lifted to ensure a supply throughout the Winter. Go through the stocks of potatoes, roots, and fruit at intervals to remove the diseased specimens. Keep the onions cool and give them abundance of air without allowing them to become frozen, otherwise they commence to make growth and their keeping qualities are impaired.

Remove decayed foliage from plants wintering in frames, admit air on every favorable day. Water them carefully; they may be kept on the dry side at this stage. Have a supply of fermenting material banked up around the frames during severe weather. Keep a sharp lookout for mice in frames where pansies and like stock is wintering. These rodents do much damage in a short time; some poisoned bait placed around is often an effective precaution. Keep up the successions of forcing vegetables where the facilities permit; renew mushroom beds as the old ones cease to be profitable.

Push on with pruning and thinning in the orchard when conditions permit. See to it that newly planted stock is securely stacked and tied to prevent it from being blown about during heavy gales. Give them a good mulch of rough litter or manure. Apply the first Winter spray, also spray shrubs that are infested with scale. Lilacs are very subject to these pests. During the Winter months ample opportunity is afforded to secure a stock of necessary tools, stakes, flats, etc., that will be needed in the early Spring. Anything that can be done now along these lines will be a real time-saver when many other important details are pressing.

December is generally alluded to as the gloomy month, but where a garden has been planned and planted with an eye to Winter effects, this garden is never devoid of interest. A tree when covered with snow or ice glistening in the sunshine is a thing of great beauty, which soon passes away, but a judicious planting of varied shades of evergreen, berried plants, deciduous shrubs of colored twig, bark, and stem, all combine to make the garden a joy from January to December.

ALPINES UNDER GLASS

(Continued from page 335)

of plants can be suitably accommodated, Primulas, Cyclamens, Trilliums, etc., going into the shaded bed; sun-lovers such as the Saxifrages, Sempervivums, Irises, etc., enjoying the one in fullest sunshine.

The alpine house certainly provides us with one of the cheapest, most interesting Spring features in the garden, and one can but hope to see an even larger extension of such a beautiful feature in the near future. *The Garden (British).*

There are two freedoms—the false, where a man is free to do what he likes; the true, where a man is free to do what he ought.—CHARLES KINGSLEY.

The constant duty of every man to his fellow is to ascertain his own powers and special gifts, and to strengthen them for the help of others.—JOHN RUSKIN.

Departments of Foreign Exchange and Book Reviews

THE PERFECT ROSE.

While very few will be found to disagree with the dictum that in the rose we have developed a wonderfully perfect variety of flowers, there remains the extraordinary fact that among the hundreds of varieties in cultivation we have achieved a standard of perfection only in a curiously small number.

It is possible to say that under critical judgment no rose at all answers the tests which would be applied to a standard of "100 per cent. perfection" if such a standard were devised by rose-growers and rose-showers. Let us consider for a moment what such a standard would be, and what requirements the perfect rose must display: The double roses would undoubtedly take first rank; undeniably beautiful though other types are, the true rose of culture is a "double"; and a double of that degree which is full-petaled. But petals are not all: There must be form. Here again there is a catholicity of taste to be catered for; the exhibition-type of fullness which is a whorl of regularly-disposed petals round a high-pointed centre is loveliness indeed, but this type has not the total claim on "form" in roses.

Color brings us to a divergence of opinion again, for one may condone form-faults and petal-shortages to include in a select list those roses whose color may bring a strong appeal to the judge's table. Who would withstand the appeal of a real deep red rose as compared to a pink, for instance?

Habits of growth then require to be considered—and once more many prime favorites will be ruled out because they are not easily accommodated: The bush-type of Hybrid Teas will win in this selection, as a class; but the gorgeous flowers of many grand roses of this free-growing class must fall away because we desire rose-bushes of compact shape and habits. And lastly, we must consider constitution; and constitution is a test that so many, many more of our rose-queen aspirants will succumb to. There must be vigor, and there must be a definite tendency to withstand diseases and pests. What grand roses are lost to us, because however great their inaugural triumphs they have "failed to grow."

So much for "the perfect rose." Shall we find it among the reds, the whites, the yellows, the pinks, or those roses which almost defy a color-description, the Pernetianas.

We come next to a class, the Decorative Roses. In the garden-roses, which is another name for what are described as "decoratives" in Europe, we have a little confusion here, for in this country we can get exhibition results "in the open," which is beyond the expectation of the Northern rosarians whose garden-flowering roses are not expected to bear blooms for the exhibition-box.

In our sunny land both will grow equally well in the open, therefore we may be excused if we find that S. A. rose-gardeners make revel with the decorative class, which has only the one fault (to the pure exhibition-rose seeker) of "fewer and looser petals." Now for garden-purposes these are no faults at all, and our rose-growing in this country is enriched by a class that is well suited to our climate and when taken as a whole, is profusely floriferous.

The semi-singles and the singles are roses which to many tastes have an irresistible appeal. Even the ultra-exhibitionist bows his head before the solid intense dull red of the incomparable Red Letter Day—a semi-single which in the half-opened stage is a wonder of coloration. And in singles, consider the color of that Irish prince of roses, Irish Elegance: it is simply marvelous, and in its strongly developed color contrasts per petal defies the competition of the double roses, on a color basis.

Ever new roses! Each year we await the awards of the great shows to see what new beauty the wizards of the rose nurseries have produced for us.

How are they produced? By very precise handling indeed: By cross-fertilizing proven colors or forms from which acceptable hybrids are anticipated. Hand-fertilizing, protection from any further crossing except the one designed; then the resultant seed-pod, the planting, and finally a flower at last; after all this trouble surely a gold medal rose! By no means! From hundreds of seedlings perhaps one or two worth carrying on with—and their potentialities hardly visible, probably quite invisible to the uninitiated eye. From the whole lot of seedlings in flower a mere dozen put back to carry on with, and hundreds for the fire. And of the selected ones perhaps not one worth "growing on," but a few maybe which display qualities that the rose-breeder recognizes as worth keeping to try and perpetuate into more promising crosses. From such a "potential" are the wonderful roses that come from Pernet Ducher's said to materialize—the "unnamed

seedling" is the parent of Madame Herriot and all her tribe.—*South African Gardening and Country Life*.

CLIMBERS FOR GREENHOUSE WALL

Given a suitable selection of plants, the wall of a greenhouse may be made as interesting as any part of the structure. To succeed with wall plants in a greenhouse by far the better plan, as with climbers of all kinds, is to plant them out. In preparing a border thorough drainage is necessary. In the case of walls that receive a good amount of light and sunshine, there are many different plants available for covering them; but, where heavily shaded and perhaps damp, the choice is very limited. In any selection of plants suitable for greenhouse walls the Heliotrope must have a place, as it will flower profusely nearly throughout the year, and a specimen of it in full bloom is very beautiful, and also extremely useful for cutting. The South African Leadwort (*Plumbago capensis*), with its clusters of porcelain-blue flowers, is also another continuous bloomer very valuable for such a purpose, while we have also seen some of the Abutilons in good condition trained to a wall. The pure white "Boule de Neige" is one of the oldest and best, while others well adapted for this treatment are *A. striatum*, yellow veined with crimson, and "Golden Fleece," deep gold. Pelargoniums, both of the Zonal and Ivy-leaved sections, will flower well, and we once saw a wall completely covered with them alone. It was in a sunny spot, and the quantity of flowers produced there was enormous, the Ivy-leaved varieties in particular producing a truss of blossom from nearly every joint. *Chianthus puniceus*, with its peculiar lobster-clawlike blossoms, is a very ornamental wall plant if the foliage can be kept clear of red spider, which is not always the case; still, a good deal can be done towards keeping it down by a liberal use of the syringe.

The various forms of *Habrothamnus* may all be employed as wall plants, but they are better adapted for pillars than for back walls. Many climbing plants, the Lapagerias, for instance, will do well in such a position, but in a general way they are hardly seen at their best so treated. Camellias are perhaps the finest of all permanent wall shrubs for the greenhouse. They also possess the merit of being almost hardy, so that a low temperature in the Winter has far less effect on them than on many greenhouse plants. The glossy foliage, too, can, with the syringe, be kept bright and clean at all seasons. The sweet-scented *Daphne indica* will succeed under much the same conditions as the Camellias, but it is rarely seen grown in this way.

In the case of a damp wall or one that is too heavily shaded for the above-mentioned plants to thrive, the better plan is to clothe it with either the small creeping *Ficus repens* or its still smaller form *minima*, both of which will grow freely in such a spot, be it stove or greenhouse. But little preparation for planting them is needed, and if the wall is fairly moist sufficient roots will be produced from various parts of the stems to support the plants. *Gardening Illustrated*.

Tall Bearded Iris, by Walter Stager. Published by the author; for sale by Madison Cooper, Calcium, N. Y.

In view of the present great and rapidly increasing popularity of the Iris a new and authoritative work on the subject is bound to meet with ready acceptance, particularly because the excellent little book of Dyke's is not only out of date but even out of print, while the sumptuous *The Genus Iris*, in addition to its lack in matters of practice, is to most persons inaccessible on account of its price. But now the lovers of "The Flower of Song," "The Poor Man's Orchid," and "The Orchid of the North," have available, at low price, thanks to the devotion of the author, a treatment from the hand of an American, thoroughly satisfactory in point of appreciation, of matters historical and literary, and of management of this plant, which, though usually most tractable, sometimes almost baffles the most proficient gardener.

The book is a revision and enlargement of a monograph of similar title distributed gratis several years ago by the author, who, after finding for many years relief from the strain of professional duties, like Joseph Jacobs among his narcissi and tulips and W. Wilks among his poppies, has become like them an authority of the first rank in his secondary field. This new edition displays, among other admirable qualities, a careful judicial temperament fostered by legal studies and practices carried well beyond the ripe old age of above four score. —F. B. M.

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Boston, Mass.: Robert Cameron, chairman; W. N. Craig, secretary, Brookline.

Western Pennsylvania: Manus Curran, chairman, Sewickley; Henry Goodband, secretary, Sewickley.

WESTERN PENNSYLVANIA BRANCH

The interesting report of the meeting of the Boston branch of the National Association of Gardeners, which appeared in the October CHRONICLE, showed of what benefit the branches can be to the members of their communities. We should have more of these branches, as they offer opportunities to members who cannot attend the annual convention, to make suggestions which can be brought before the annual meetings. It is not necessary to decide

that meetings be held at regular intervals. Just bring the local members together and select a chairman and secretary. Your chairman can then call a meeting whenever any subjects of interest to the members arise, that can be discussed with profit to the association and the profession it represents. Notify the national secretary, Mr. Ebel, that you have organized a branch and send him the names of your chairman and secretary. He will then advise your secretary whenever anything comes to the national office which should be submitted to the local branches for consideration and action.

JOHN BARNET, Vice-president.

A PLEA FOR MORE BRANCHES

A meeting of the members of the Western Pennsylvania Branch of the National Association of Gardeners was held at Ridgeview Farm, Sewickley Heights, Pa., on November 15.

Mr. Manus Curran was unanimously elected chairman and Henry Goodband, secretary, for the ensuing year. A motion was carried that each member be assessed fifty cents a year for dues to defray current expenses and that the secretary be empowered to purchase the necessary stationery, etc. It was moved and carried that a meeting shall be called at least one month previous to the annual convention, and the rest of the meetings shall be called at the discretion of the chairman.

John Barnet, president-elect of the National Association of Gardeners, and Wm. Thompson, Jr., gave a brief account of the Boston convention held on September 12-15, which proved quite interesting.

The secretary was instructed to acknowledge with thanks Mr. August Frishkone's offer of the use of his store for any of our meetings. Mr. Barnet was appointed to see Mr. Moore, of West Park, about a meeting place.

It was moved and carried that the rules and regulations of local branches as approved by the Newport, Boston and St. Louis Branches be approved by this branch.

HENRY GOODBAND, Secretary.

NEW MEMBERS

The following new members have recently been added to the association: James Guilfoyle, Southampton, L. I.; Henry Banak, New York, N. Y.; Thomas Roland, Nahant, Mass.; Martin Kuiper, Oyster Bay, L. I.; Michael Latham, Port Chester, N. Y.; H. D. Ayling, Cedarhurst, L. I.; Robert Broadbridge, Monmouth Beach, N. J.; Otto Peulecke, Ridgefield, Conn.; Salvatore Cairo, Port Chester, N. Y.; Harold Graham, Newton, Mass.; John A. Lynn, Glenview, Ill.; James Barnet, Atlanta, Ga.; Charles Stude, Somerville, N. J.

IS GARDENING A PROFESSION?

When the question arises, Is gardening a profession? I answer, Yes! Although whenever it is discussed as such there is nearly always to be found a diversity of opinion on its being so classified rather than as a trade.

That the man who merely possesses sufficient knowledge to mow the lawn, tend to the vegetable patch, and grow a few varieties of flowers, is rated as a gardener instead of a garden laborer, is no fault of the profession unless it may be charged with having been lax in making it more generally known what the qualifications of a gardener really are.

Neither has the profession any power to prohibit milady from deriving pleasure out of referring to "my garden," whose chief duties are to run a Ford, tend the furnace, do the cook's chores, and, when the nurse absents herself, look after the children in addition to his gardening. His proper title is that of handy man.

Of course, if the standard of the gardener is to be judged by all who are classed as gardeners, one might even be justified in assuming that the gardener comes within the ranks of labor.

When, however, we consider the gardener who possesses the talent and the ability to produce all that is æsthetic in the garden, he surely cultivates a fine art, which is in every respect entitled to recognition as the work of a professional. But his knowledge is not alone limited to the garden, for as the superintendent of an extensive country estate, he must have a working knowledge of agriculture, husbandry, dairying, building, road construction, power

plants, etc., in order to prove himself an efficient supervisor of the work that comes under his management.

Those who have had experience with gardeners know that the type at times portrayed by the humorist does not represent the gardener who depends on his intelligence for success. The increasing tendency to turn to the colleges to acquire a theoretical knowledge as well as the practical experience which comes to one through working in a garden, will bring recognition to the profession as being a worth-while one, one that creates inspiration, and not discontent among mankind.—M. C. E.

LOCAL SOCIETIES

THE CLEVELAND HORT. SOCIETY

At the Chrysanthemum and Vegetable Show of the Cleveland Hort. Society, Nov. 9 and 10, the quality of the exhibits was exceptionally fine, the big 'munis being of the very best. The specimen pot plants were all well grown, especially a single "Cinderella" exhibited by George Jacques. The Winter flowering begonias were also well grown plants, as were the Lorraine type. R. P. Brydon received a Certificate of Merit on the former, and a Cultural Certificate on the latter. The vegetable classes were well filled and of excellent quality. A collection of berry bearing branches taken from trees and shrubs on the estates of J. L. Severance and Mrs. F. F. Prentiss was most interesting, being one of the exhibits to cause the greatest interest in the show.

The awards for cut blooms, chrysanthemums, were as follows: 24, Mrs. F. F. Prentiss 1st, silver cup (R. P. Brydon, Supt.); 24, Mrs. W. T. White 2nd, silver medal (R. Broadfield, Supt.); 6 white, W. D. B. Alexander 1st (F. Eckhard, gard.); 6 yellow, W. G. Mather 1st (George Jacques, Supt.); 3 white and 3 pink, J. L. Severance 1st (A. Brown, Supt.); 3 yellow, E. S. Burke 1st (W. E. Fisher, Supt.); 3 bronze, J. L. Severance 1st; 9 Japanese large flowering anemone, Mrs. F. F. Prentiss 1st; 6 sprays single white, Mrs. J. D. Lyons, Sewickley, Pa., 1st (John Barnett, Supt.); 6 sprays single pink, J. L. Severance 1st; 6 sprays single yellow, J. L. Severance 1st; 6 sprays single bronze, Mrs. J. D. Lyons, 1st.

In pot plant chrysanthemums: 7" and over singles, W. G. Mather 1st; 6" singles, Miss Sherwin 1st (L. B. G. Webb, gard.); 7" and over pompons, Mrs. Knapp 1st (W. Peschke, gard.); 6" pompons, Miss Sherwin 1st; 7" and over decoratives, Mrs. F. F. Prentiss 1st; 6" decoratives, Miss Sherwin 1st; 6" anemones, Mrs. Knapp 1st.

Collection of foliage and flowering plants, W. G. Mather 1st. Collection of vegetables, E. S. Burke 1st. Six varieties of vegetables, George Hancox, 1st.

In pompon and decorative classes the awards were as follows: Six sprays pompons, white, Mrs. W. T. White 1st; 6 pink and 6 yellow, J. L. Severance 1st; 6 red, E. S. Burke 1st; 6 bronze, Mrs. Knapp 1st. Three of any color, Mr. Baker (George Williams, gard.) 1st, silver medal. Six sprays decoratives, white, Mrs. F. F. Prentiss 1st; 6 pink, J. L. Severance 1st; 6 yellow, E. S. Burke 1st; 6 bronze, Mrs. W. T. White first.

In the table decorations for ladies, Mrs. Laine won first and Miss L. Jacques second. All the carnation classes were carried by W. G. Mather.

A Certificate of Merit was awarded Hermann Rapp, Sewickley, Pa., for seedling anemone, white, "Mrs. Edna Thompson."

The judges were: J. Carman, Sewickley,

Therefore It Hath Its Charm

Isn't it hard to quite understand how some people spend unthinkingly for buildings and the "doing over" of their grounds, only to secure a regrettable effect of man-madness?

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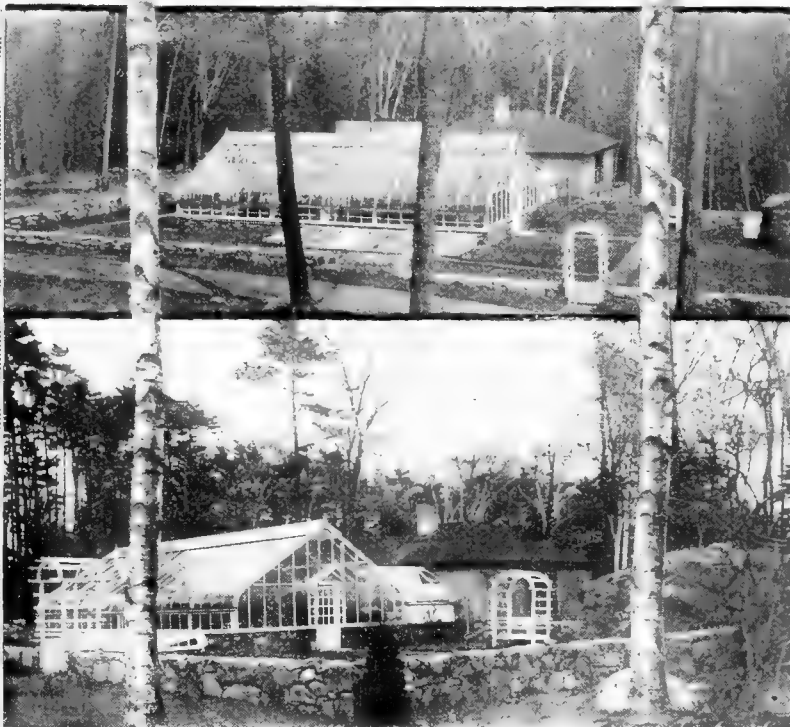
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Pa.; R. Weeks, Mansfield, Ohio; J. Curnow, Akron, Ohio. W. J. BRUCE, Sec.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

A meeting was held in Greenwich, Conn., November 14. There was a large gathering of members, and nominations of officers for 1923 were received.

One new member was elected and a fine exhibition of chrysanthemums were staged.

Prize winners in the chrysanthemum competition were as follows: Class 1—Six blooms, one or more varieties: 1st, James Stuart; 2nd, J. McCarroll. Class 2—Three blooms, one or more varieties: 1st, W. D. Robertson; 2nd, Alexander Smith. Class 3—Twelve anemones, one or more varieties: 1st, W. Sealey; 2nd, G. Hewitt. Class 4—

Six vases of pompons, six varieties: 1st, G. Hewitt; 2nd, W. Sealey. Class 5—Six vases of singles, six varieties: 1st, James Stuart; 2nd, W. D. Robertson. Class 6—Vase of pompons for effect, any foliage allowed: 1st, W. Sealey. Class 7—Vase of singles for effect, any foliage allowed: 1st, H. F. Bulpitt. Class 8—Centerpiece of chrysanthemums, any foliage allowed: 1st, W. Sealey. Class 9—Vegetables; six varieties, arranged for effect: 1st, James Linane.

The members of the society met in Greenwich on Sunday, November 26, and went in a body to the cemetery to place flowers on the graves of deceased members.

T. J. BULPITT, Cor. Sec.

NASSAU CO. (N. Y.) HORT. SOC.

The regular meeting of the above society was held at Glen Cove, L. I., on November

8. Two applications for active membership were received. President Milstead appointed S. Trepass, J. Nash and J. Mitchie to judge exhibits, and their awards were as follows: Three pink, 3 yellow, 3 white 'mums, 1st, Joe Merchler. Table decorations for assistant gardeners were keenly contested and some fine tables were put up. A table of roses of much merit, arranged by Ernest Redill, received the society's special prize. The chrysanthemum tables were also very good—1st, James Young; 2nd, Herbert Adams; 3rd, Theodore Phillips. Trubie Davison was elected to honorary membership. The report from the 'mum show was adopted, and the manager and judges were given a hearty vote of thanks.

Two hundred and seventy-three exhibits were staged at the most successful Chrysanthemum Show in the history of the society, held November 22-23. Mrs. Percy Chubb's (Peter Smith, Supt.) group of chrysanthemums was awarded first premium. Mrs. John T. Pratt (Jack Everett, Supt.) was awarded first premium for a very artistically arranged group of foliage and flowering plants and a Cultural Certificate for six fine plants of geranium grown in the old English style. For twelve chrysanthemums, four varieties, three of each, first, Mrs. E. F. Luckenbacher (Thomas Twigg, Supt.). For the best twelve varieties, short stems, first, Mrs. Percy Chubb. For the best eight chrysanthemums, one variety, first, Mrs. H. L. Pratt (James McCarthy, Supt.). For the best six yellow chrysanthemums, first, Mrs. C. A. Coffin (Joe Boehler, Supt.). Miss Alice DeLamar (James C. McMannin, gardener) had the largest bloom in the show, "William Turner," twenty-eight inches in circumference. Twenty-five varieties of chrysanthemums grown and flowered outdoors: First, Mrs. George F. Baker (James McDonald, Supt.). Best twelve varieties grown and flowered outdoors: First, Mrs. M. Daball (August Stanga, gardener). Best nine varieties of single chrysanthemums: First, Mrs. Payne Whitney (George Ferguson, gardener). Best Twelve sprays, single chrysanthemums, one variety: First, Mrs. Harold I. Pratt (F. O. Johnson, Supt.). Honors in the rose class went to Mrs. C. A. Coffin. The carnation classes were divided between T. D. M. Strachan (A. Andrews, Supt.) and Mrs. F. W. Woolworth (James Churchill, Supt.). Mrs. H. L. Pratt won the Stumpp & Walter Cup with a fine collection of vegetables, twelve varieties. The fruit section also went to Mrs. Harold I. Pratt. On table decorations Mrs. Andrew Fletcher (Ed Harris, Supt.) won the first prize, a silver cup donated by Mrs. H. L. Pratt; 2nd, Mrs. A. C. Bedford (William Milstead, Supt.); 3rd, Mrs. Harold I. Pratt; 4th, Mrs. J. P. Morgan.

A. S. Coope, Cor. Sec.

DISCOVERY

Autumn is a time of revelations. If, in the early spring, the tree is garbed overnight in a mantle of soft green, may not the autumn gale which strips that same tree of its dress, grown bronzed and copper colored, bring a new revelation? The foliage is only a seasonal gown; it adorns the tree, but it is not the tree. The autumn frosts and winds do their work in discovering for us the delicate tracery of bough, branch and tiny twig. Let there be many trees, as in a wood, and we have a marvelous lattice work through which wonderful things may be seen.

All summer the abundant foliage and thick underbrush, encouraged the belief in a forest without bounds; but one morning after a night of torrential rains followed by strong winds, we looked out upon our wood, and the skeleton of the forest of denuded trees



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we saw the picturesque relic of an old block house; the lichen-covered beams a silent witness to sterner days when pioneers hewed a path for civilization. Through the screen of twisted oaks and straight pines a cotton field; the sunlight gently touching each bursting pod; beyond, a low-built farmhouse, perched high upon a neighboring hill. All these lay hidden in, and beyond the verdant trees. They are revealed to us by autumn's breath.

The sunbeams, now unhindered, sweep the woodland paths, turning the wet leaves to burnished gold, over which the grey squirrels scurry as they cache their winter store of nuts.

So autumn, like every season of the year, is an opening, not a closing, door; a new beginning, not an end.—C. S. M.

STATEMENT OF THE OWNERSHIP, MAN-AGREEMENT, CIRCULATION, ETC., required by the Act of Congress of August 24, 1912, of "Gardeners' Chronicle of America," published monthly at New York, N. Y., October 1, 1922.

State of New Jersey }
County of Union }

Before me, a notary public in and for the State and county aforesaid, personally appeared M. C. Ebel, who, having been duly sworn according to law, deposes and says that he is the editor of the "Gardeners' Chronicle of America" and that the following is to the best of his knowledge and belief a true statement of the ownership, management (and, if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, managing editor, and business manager are: Publisher, The Chronicle Press, Inc., 286 Fifth Ave., New York, N. Y. Editor, M. C. Ebel, 286 Fifth Ave., New York. Managing Editor, M. C. Ebel, 286 Fifth Ave., New York. Business Manager, D. Ebel, 286 Fifth Ave., New York.

2. That the owners are (give names and addresses of individual owners, or, if a corporation, give its name and the names and address of stockholders owning or holding 1 per cent, or more of the total amount of stock).

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent, or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.) There are no bondholders, mortgagees or other security holders.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the owners, stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no

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Sworn to and subscribed before me this 11th day of October, 1922.

M. C. EBEL, Editor.

EUGENE PIERSON.

[Seal]

(My commission expires Jan., 1925.)

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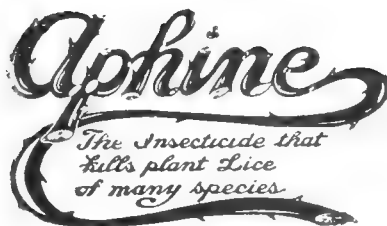
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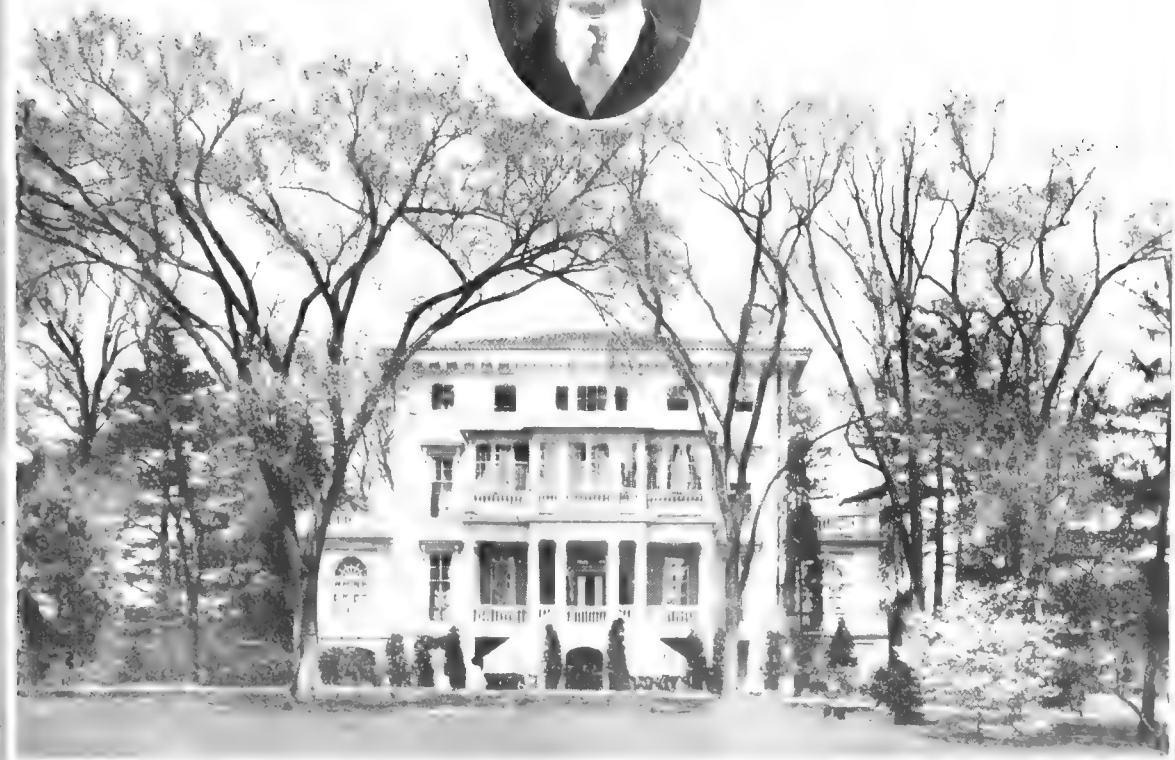
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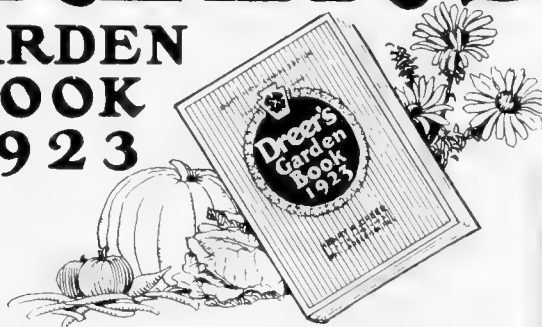
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

JANUARY, 1923

No. 1

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THE continuous stream of seed catalogues at this season concentrates our thoughts once more on the garden and what we shall plant the coming season. The first and most sumptuous of these catalogues came to hand as nearly as December 10 from Sutton and Sons, England. Our English friends send out their seed lists much earlier than we do, because Spring over there starts while the ground here is still buried in ice and snow, in fact, it is only occasionally that they have a Winter sufficiently severe to delay outdoor seed sowing until March. There is much pleasure to be derived from the perusal of the incoming seed lists on cold Winter days when a mantle of white covers terra firma and the thermometer flirts with the zero mark. We are always specially interested in the novelty lists. The descriptions are often fanciful and thrilling, and we feel impelled to try a packet of one or two of the new things catalogued. This is an excellent idea, for we cannot afford to be too conservative in the garden if we want to make it attractive and appealing. Harmonious blendings of colors in the flower garden are unquestionably the first consideration, but if one can work in a few novelties, they seem to give an added spice. Only a limited proportion of the new things come true to their laudatory descriptions, but if one or two make good, surely we are amply repaid for trying them.

The omnipresent scarlet salvias, red geraniums, yellow and red cannas, and other subjects which form the principal staples of the average florist who handles bedding plants, are tabooed in many gardens, and rightly so, but that they still have a place and a warm place in the hearts of many, none can deny. To many, a mass of scarlet salvias, cannas, or geraniums, is one of the finest possible floral pictures and they would much prefer them to a garden of perennials and annuals, painstakingly planted and religiously culled as to colors so that there will be no floral conflicts. We may pity those who do not view things as we do, but let us be glad that they love flowers at all, see beauty, and find enjoyment in them. Some day they may try other plants and produce more æsthetic effects. I can see a steady advance among amateurs, and in increasing number find mixed plantings in borders of bulbs, perennials, and annuals, vastly more satisfying than the former stereotyped masses of such subjects as we have named.

In purchasing flower seeds, I would commend an in-

creased use of beautiful single Chinese asters. The variety, Southcote Beauty, obtainable in a number of colors is lovely. Seed may be sown from the end of February until the middle of June if a constant succession of blooms is wanted. The flowers are large, averaging four inches in diameter, and are carried on stems twelve to twenty-four inches long. The colors include mauve, pink, white, scarlet, coppery rose, and crimson scarlet. If possible, asters should have a change of soil, which will help to eliminate stem rot and yellow. The black beetle which loves to devour the opening flowers, can be controlled by a spraying of Paris Green in water, an ounce will suffice for ten to twelve gallons, and if a little lime is added, the danger of burning will be prevented. Thus weakly applied, the poison will finish the beetle and not discolor the flowers noticeably.

* * * * *

Anchusa, Dropmore and Opal, are well known perennials with somewhat coarse foliage. The color, however, is excellent in the garden. Too few garden lovers sow the pretty annual Anchusa which has forget-me-not like flowers and small foliage, which resembles a glorified myosotis. It flowers in eight to ten weeks. From seed sown as late as the end of June, it will make a lovely showing of bloom from September onwards. This Anchusa can be sown where it is to flower, or transplanted. Those who have not grown the old *Salvia sclarea*, (Clary) an old-fashioned mauve-colored variety, should try it and, of course, none should overlook *Salvia farinacea* with lavender flowers, a good flower and most effective in the garden. It is also excellent for cutting. For those wanting a free flowering blue annual of moderate growth, I would recommend the blue shade of *Phlox Drummondii*, and in mountain and shore resorts, *Nemesia*, Blue Gem, succeeds very well, as does the upright flowering *Lobelia tenuior*. *Browallia speciosa* major blooms a long time in the garden and its large, bright blue flowers are most effective. It furthermore makes a fine basket plant. There is no annual suitable for border purposes which is a more persistent bloomer than *Torenia Fournieri grandiflora* with violet, blue, and white flowers.

* * * * *

Ipomœa, Heavenly Blue, is an unusual sky blue morning glory, which is more delicate than the ordinary morning glories, or convolvuli as they are still often called. It must be started in a greenhouse and not planted out until we have really warm and settled weather. It also makes a lovely plant for greenhouse or conservatory

decorations, succeeding specially well in a large pot or tub, and trained on a trellis. There is no better quick, tender climbing perennial today than the purple and white forms of *Cobea scandens*, when it is desired to cover a fence, pillar, or trellis thickly and quickly. Speaking of fences and rough stone walls, the ornamental gourds come in finely. They are quite numerous and their ripened fruits are most attractive. At a vegetable collection, a collection of them at once attracts attention; especially good are the apple shaped, bottle shaped, orange, egg, pear, Hercules Club, calabash, dish cloth, and Bishop's mitre varieties.

There are about the usual number of vegetable novelties and at least a portion of them should be tried out. The yellow sweet corns are now rapidly pushing the white varieties into second place. Golden Giant still seems to be the best, but a whole lot of other good yellows are now available. There is certainly a sweetness to the yellow varieties we cannot get in Crosby, Stowell's Evergreen, Potter's Excelsior, Country Gentleman, and other good whites, although the larger varieties will remain popular for canning purposes. Peas are the crop which demand early planting, and there is no better all round early sort today than Sutton's Excelsior, while for those who can give a tall, lusty grower the necessary supports, Alderman still stands without a peer as a main and late crop variety. World's Record is very good as a second early and Improved Gladstone is hard to beat as a late variety. It is pleasing to note an increased interest in Fennocchio or Florence Fennel excellent as a salad and very good cooked or served naturally like celery. This vegetable, if sown too early, will run to seed; early July is a suitable planting time.

Why not plant a little patch of sweet and pot herbs this year? Nothing can be more interesting, and many in addition to their fragrance, have culinary, medicinal and other uses. Out of the large number of varieties, lavender and rosemary should be started in a frame or greenhouse. Lavender with a little protection has for years withstood temperatures far below zero, but rosemary is more tender and should be wintered indoors. It makes a nice pot plant. Of the other perennial herbs, some of the more useful and easily grown are: Mint, pennyroyal, lovage, horehound, balm, sage, broad leaved sorrel, thyme, and angelica, the last named is a very lusty grower and attains a height of eight feet when in seed, and presents a semi-tropical effect. Tarragon while hardy, will sometimes die out, and it is a good plan to winter a root or two in a frame. Some of the varieties which are annuals or tender perennials are: Sweet basil, Summer savory, Winter savory, sweet marjoram, pot marjoram, dill chamomile, coriander, anise, and caraway. There is no need to sow any of the annuals outdoors until May, but lavender and rosemary may be sown under glass now.

On mild days during the Winter, the spraying of all fruit trees as well as deciduous ornamental shrubs and the species of hardy roses should be done. We should not leave this very necessary work until Spring. Goodness knows we have more than we can properly accomplish at that time. Such soluble oils as Scalecide are best for the amateur—the big growers are divided between oils and liquid lime sulphur. One or two oil preparations have been put on the market which have damaged trees, but I have never known Scalecide at one to twenty to do so. A year ago I had occasion to visit a private estate and

was asked to explain why a house of peaches and nectarines had failed to break. It did not take long to locate the trouble—one of these soluble oils had been applied at the fifty-fifty rate! I need hardly say that no amount of syringing would make these trees break, as they were practically killed outright. We have learned to fear the San Jose scale less and less as we have learned how to spray, and have better fruits and cleaner shrubs as a result of these dormant Winter treatments. By all means, if you have not yet sprayed, do so on a mild day when the sun shines, and you will not only kill the various scales, but many eggs of other insect pests.

A query often repeated is "How can poultry manure be used to the best advantage?" To begin with, the scrapings from the roosts should be removed each week, dusted with acid phosphate and placed in barrels on the floor of a shed where they will not be exposed to the elements. Acid phosphate is an inexpensive fertilizer, is non-odorous, and pleasant to handle. It holds the ammonia in the manure and for that reason, is much used on the floor of cow barns where the manure and urinal constituents drop, thus preventing great wastes in ammonia. It should be spread over the dropping boards when they are cleaned off and a little more added when the manure is placed in a pile or barrel. The wrong way to keep poultry manure is outdoors where it will steam if in heaps all Winter and waste the major part of its strength. It is a forceful manure, and rather than dig it or spade it into the soil, it will be found especially valuable as a top-dressing to stimulate plants when growing. Peas, leeks, onions, cabbages, cauliflower, egg plants, squash, celery, roses, gladioli, cannas, asters, dahlias, peonies, and larkspurs are a few of the plants which respond readily to a topdressing of it, which should be always worked lightly into the soil with a hoe, rake, or cultivator.

The shortest days have passed and they are now appreciably lengthening. The cold strengthens but the sun's rays will ere long melt the snows on hillsides and in warm secluded spots we shall soon be looking for the first snow-drops, to be followed a little later by crocuses, winter aconites, chionodoxa, and scillas, a group of simple, innocent, inoffensive bulbs, never known to bring in any dangerous insect pests or diseases and not being successfully produced in America at all, yet with the exception of crocus denied to us by our all powerful Federal Horticultural Board which contains alas, not one horticulturist. But a late hearing somewhat encourages us in supposing that facts adduced at a recent hearing may have so far punctured the anatomies of these August protectors of our plants and nurserymen that they may relent and allow us to import some of the denied bulbs "under suitable safeguards," for a limited period. It seems queer that it should be safe and necessary for one firm to import thousands of *dicentra spectabilis* and for the issuance of special permits for great numbers of such extremely rare plants as Norway maples for nurserymen supporting the notorious Quarantine No. 37, yet that amateurs who have really made horticulture here what it is, should have been denied the early little Spring bulbs named except they furnished bonds and went through an endless and entirely ridiculous amount of red tape. And it is encouraging in some measure to those who steadily condemned the embargo and demanded needful modification in it, that the Federal Horticultural Tariff Board (as it would most properly be called) has at last been compelled to make a concession to the despised amateurs.

The Fern Garden

ANNA B. FREEDLEY

IT seems strange to me that so little is written about our native ferns. We have numerous articles devoted to the perennial or annual and even to the wild flower garden. In fact modern literature is almost over supplied with such information and I often wonder why the ferns have been so neglected. They are most abundant throughout the northeastern United States, especially in the mountains of New England. Perhaps their abundance is one reason, for along every roadside and woodland path



The Interrupted Fern

and in every meadow and pasture they are always to be found. Something more showy and harder to obtain, some new and large variety of flower, seems to attract the attention of the garden makers of to-day.

My fern garden is a source of much pleasure and interest to me with its cool greenness all through the hot summer days and even after a heavy frost has touched all but the evergreen varieties, for these still stand up, their glossy fronds making a pleasing contrast with the falling Autumn leaves, so gay in color.

There is infinite variety in the ferns. The foliage is of many different shapes and shades. The fronds are graceful and arching, stiff and upright, or even low and creeping; some are finely cut giving a dainty and feathery appearance, others are broad and entire, giving a more solid and blade-like effect. I have found them all hardy, easy to transplant, and most satisfactory under cultivation.

They belong to the Cryptogams, being flowerless plants and produce spores which take the place of seed. It takes two generations to make a new fern. From the ripened spore which has fallen to the ground rises the prothallium, a thin heart-shaped plant about a quarter of an inch across, or sometimes a little larger, which is attached to the ground by small roots. This very tiny plant is short-lived, living only a few days and bears the antheridia

and archegonia, which correspond to the stamens and pistils of the flowering plants, and their union results in the new fern, which again in its turn bears the spores. Most of the ferns increase also by underground stems which send up buds and in this way new plants are formed, for they may be detached from the parent and transplanted. My ferns have increased rapidly. Every year I find new shoots and I have several times found it necessary to thin out a clump or move a plant which was being crowded by its neighbor, perhaps a larger or more vigorous type.

A fern garden in a shady corner of the garden or beside the porch is a source of daily delight and a study of these interesting and beautiful plants in their many forms and varieties will amply repay the slight trouble that they may give, for they make an almost troubleless garden by their hardiness and ability to withstand the crowding of the ever-present weed. Indeed they thrive better than the weeds! I think this is because in their native haunts they are always surrounded by other plants and their roots have become accustomed to and strengthened by a continual struggle with the large roots of trees and bushes and tough perennial weeds. They seem to be always crowded and yet always to be holding their own. The little weeds which pop up in our cultivated gardens must seem very insignificant compared to the wild growths which the ferns encounter in woods and hilly pastures. Often while digging up specimens to bring home I have had more trouble with neighboring roots than with those which I desired to procure.

The first thing to consider in planning a garden of any kind is the location. Ferns require shade and as much coolness and moisture as can be obtained to carry them through the hot part of the season. A northern or northeasterly exposure is no doubt the best. My garden faces the southwest, which at first will seem a very poor spot indeed, but two large elms and a linden shade it nearly all day and the sunlight filtering through the leaves gives the added charm of changing light and shadow to this all green garden.

The soil condition should be considered next. This should be mixed as far as possible to resemble the soil in which we find them growing. Most varieties grow in woods where it is not unusual to find them in pure leaf mold and leaves in different stages of decay, the upper roots running like little silver ribbons between the flat surfaces in search of nourishment, while the larger and older ones penetrate to the soft rich soil beneath, which is composed almost entirely of decomposed leaves fallen in past Autumns. Leaf mold, then, must be added to the chosen plot of ground in large quantities. A mulch of well-rotted manure is beneficial, but not at all necessary. For Winter covering plenty of leaves is all that is required as that is the only protection they receive in the woods. This also keeps the soil in good condition as some leaf mold is added each year.

A few hours walk through the woods with trowel and basket will yield many specimens with which to start the garden. If anxious for an immediate effect with some fairly large plants for background and accent, a spade must be used in order to procure as much root as possible. Be sure to give plenty of water at time of transplanting and, if it be a hot day or during a dry spell, continue watering the plants for several evenings following or until the fern becomes accustomed to its new situation.

Some ferns grow along roadsides and in the fields exposed to the full sunshine. These seem of a tougher, thicker texture, no doubt developed as far as possible to retain all the moisture they can obtain. They take very kindly to a cool cultivated spot and seem to appreciate it by developing foliage of a soft rich green, losing the yellow tint the sun gives to them. The wood loving ferns are the daintiest and most beautiful, being more feathery in appearance and of a finer texture.

The Interrupted Fern (*Osmund Claytoniana*) and the Cinnamon Fern (*Osmunda cinnamomea*) are two of the most satisfactory large ferns, growing to a height of from four to five feet. They have long graceful fronds coming from the crown in a circle and giving the plant a vase-like shape.

The Cinnamon Fern is a medium green, with rather finely cut edges and is unusually dainty in appearance for such a large variety. The spores are most interesting. They appear in June on stems rising from the center and hang like minute bunches of dry and crinkled grapes. They are a lovely soft brown and from this fact the fern takes its name. These fertile stalks disappear later in the Summer, but the sterile or leafy fronds stay green and fresh until late in the season.

The Interrupted Fern is quite different. The fronds are lighter green and not being so finely cut along the edge, give a more substantial effect. The spores are the same soft brown, but are borne midway up the leafy frond interrupting the pinnae which are opposite and arranged in even ranks. These spores hang in little clusters similar to those of the Cinnamon Fern. They are very ornamental and remain on the stalk all the season making an interesting note of color in this green garden.

Both of these ferns have a large tough rootstock which makes them a little more difficult to dig up than some of the smaller varieties, but they are very hardy and even if the root becomes broken, which is almost sure to happen, they recover rapidly. I have a lovely specimen of the Interrupted Fern in my garden which gave me a great deal of trouble when digging as this large root had worked its way between two rocks. After trying in vain for some time to get a large portion of the root, I broke it off and carried it home, only to see it droop most forlornly. I planted it carefully and watered it thoroughly, but the next day it still drooped and when one frond turned yellow, I was sure I would lose it. However, I continued to give it plenty of water and it responded by gradually cheering up and is now one of my most attractive plants. It has proved its hardiness and willingness to be transplanted by doing well under cultivation.

These two larger varieties are especially useful as accents by steps or in the bays and promontories of the garden design.

The medium-sized ferns which we will consider are the Spinulose Wood Fern, the Evergreen Wood Fern, the Long Beech Fern, the Christmas Fern and the Sensitive Fern.

The Spinulose Wood Fern (*Aspidium spinulosum*) is one of the most beautiful of the ferns. It is vase-shaped and grows to be one foot to one foot and a half high and is very finely cut, looking like lace. It reminds me of the fine mesh we see in the lace collars which the old Dutch gentlemen wore while sitting for their portraits. It is a good medium green and makes a very attractive mass effect for filling in the middle portions of the design. The sterile and fertile fronds are similar. The spores are round, pale yellow and are borne on the under side of the pinnae. They are inconspicuous and not often seen except by those who turn the leaf over in search for them.

The Evergreen Wood Fern (*Aspidium marginale*) is

very similar in size and shape, but in texture is much heavier. The color is deeper green, with a dull almost leathery finish and the new fronds are a bright Spring green, making a decided contrast with the older leaves. The edges of the pinnae are rather coarsely incised and the general appearance of the fern is that of stability. The leaves stay green all Winter under the snow. The spores are deep brown, disk-like and prominent, borne on the under side of the pinnae at the extreme edge. The sterile and fertile fronds are alike in shape and color, the spores not visible when looking down upon the plant.

The Long Beech Fern (*Phegopteris polypodioides*) is a most attractive little plant, being not quite as tall as the two varieties just described. It is rarely over one foot in height. It possesses a charm which the other ferns do not have and it should have a place in every garden. Its cheerful and almost pert appearance attracts the attention of every visitor. Its expression is the same as we find in the face of the pansy,—full of good nature and happiness. The fronds are medium green, of good texture and taper to a sharp point. The lower pair of pinnae turn upward, almost set at right angles to the main stem. It is exceedingly interesting and makes such a pleasing contrast with the more graceful and arching fronds of some of the other varieties, that it fully repays a longer search in meadow and woodland, for it is not as common as those mentioned above. It is also very hardy and satisfactory under cultivation.

The Christmas Fern (*Aspidium acrostichoides*) is familiar to everyone with its long narrow fronds of deep glossy green, very sharply pointed, which sometimes droop gracefully and sometimes stand erect in an almost defensive attitude. This fern is evergreen and substantial. It is good for foreground or middle distance and is especially distinctive used as a small accent. The fertile fronds are quite noticeable, as the tip is constricted and shriveled. The spores are borne on the under side of this tip in crowded groups and are of a rich brown color. Each pinnae is armed with small sharp bristles and the stem has small tufts of brown down on either side.

The Sensitive Fern, (*Onoclea sensibilis*) is so called because the young leaves which first appear in Spring droop quickly and are tender. It is not really sensitive, but quite hardy. It is found along roadsides exposed to strong sunlight or along woodland paths. The specimens that are growing in sunny situations have a distinct yellow tone, while those in the shade are darker, greener, and more thrifty. The leaves are deeply lobed, having an entire edge which gives the plant a very different appearance from any of the other ferns. There is also a form with undulating edges. The spores are borne on their own stems and are quite conspicuous. This fern is valuable for obtaining contrast on account of its distinctive foliage.

One of the smallest ferns is the Common Polypody (*Polypodium vulgare*), sometimes called Snake Fern. It is seldom over six inches in height. It is found through the woods and along the banks of mountain streams, covering rocks and boulders like a carpet and growing in tiny crevices where there is hardly a bit of earth. It is, therefore, valuable for rock work and to place between flag-stones. The fronds are slender, deep green and of a dull leathery texture. They are evergreen and resemble the Christmas Fern in shape, but are not glossy, do not have the small bristles on the leaflets and are much smaller. The spores are borne on the under side of the leaf at the tip, and are deep yellow and very close together.

The Maidenhair Fern (*Adiantum pedatum*), so well known and so well loved by all, hardly needs to be

(Continued on page 8)

Japanese Morning-Glories

SOME of our most popular flowers have either originated, or been much improved in Japan. The morning-glory, called by the Japanese "asagao," is one of the plants to which they have paid particular attention. Although brought to Japan about the sixth century by priests and scholars who had gone to China to study the Buddhist religion, it was not until about the seventeenth century that the morning-glory received any special attention. Flowers then began to be produced in innumerable shades and combinations of colors and the size was considerably increased. About 1830 the "asagao" again became popular, growers vying with each other in producing new varieties, and a single seed might command a price of twenty-five dollars or more. Interest gradually declined, however, and the art of cultivating this



(Courtesy of Missouri Botanic Garden Bulletin)
Japanese Morning-Glory Blossom

plant was retained only by a few priests. About 1895 interest was again revived, "asagao clubs" were formed, and famous morning-glory gardens were established in Tokyo. Poetic names, such as frozen moonlight, foam of the sea, dragon's spume, full moon, were bestowed upon the finest blossoms; artists used them in paintings and designs; and numerous poems were written on them and to them. In fact, the morning-glory became a national cult even more than the chrysanthemum had ever been. The Japanese growers went to every possible extreme in changing the shape and color of the flowers. Not being satisfied with this achievement, they devoted their attention to producing the greatest variety of odd-shaped leaves, and in their quest for eccentricities produced flat stems which have the appearance of a wide-ribbed ribbon, as if many stems were laid side by side and then merged into one. The "asagao" was not only popular because of the wide range in size and color of the flowers but because the plants could be grown as "dwarfs."

Attempts have repeatedly been made to show these Japanese morning-glories at the Garden, but all the seed obtained either failed to germinate or produced the common types of this country. In the early part of this year,

however, seed of these dwarf morning-glories were obtained from Japan through Mr. Takashi Matsumoto, a former student in the Shaw School of Botany. This seed was divided, one-half being sown the middle of February and the second half the beginning of June. The seeds of the first lot germinated very unevenly, but by cutting a notch in those seeds that failed to show signs of life in two weeks the majority were made to develop. Most of these plants were extremely dwarf, sometimes being less than a foot high with not more than half a dozen leaves. These tiny plants produced the most gorgeously colored flowers, often four to five inches in diameter. Seeds from these flowers did not set freely, but the few that were secured were planted as soon as mature. In the second generation, however, instead of dwarf specimens, plants were produced that climbed fifteen feet and more. The size of the flowers was not diminished, some of the pink varieties measuring six inches in width. Still more interesting and peculiar is the fact that the second planting of the original lot of seed received from Japan, which was made the first week in June, instead of producing dwarf plants, sent out long vines so that the bamboo



Japanese Morning-Glory Plant

trellises, described in the Japanese instructions, had to be employed to train them. In order that germination might be hastened every seed of this second lot was cut, and practically all germinated within forty-eight hours.

The following directions, printed just as translated by Mrs. Matsumoto, were received with the seeds:

"CULTURE OF THE MORNING-GLORY"

"In order to meet the requirements for growing the morning-glory, the soil must be superior in two respects, drainage and fertility. Under no circumstances use heavy clay.

"The time of sowing is entirely governed by the climate, and it is very important that the growers should be acquainted with their local climatic conditions before growing these special plants. For the vicinity of Tokyo the sowing season generally starts in the middle of May or a little earlier. In general, the plants grow much better in warm places; therefore, the growers should not

sow the seeds until they feel quite sure that warm weather has come to stay, and there is no fear of frost injury.

"There are two types of seed-beds. The one is by sowing the seeds in a framed bed, and the other is by sowing them in a pot.

"I. Framed beds. For this purpose the bed should be well ventilated and sunny. It is very convenient to make the beds about three feet in width, but their length may be of any desired extent. Simple culture frames of usual type are employed, except that no glass cover is used, and their height is usually about five inches.

"Place the frames where the seeds are to be sown, and fill them with well-drained soil (about three to four inches deep) by sifting. Smooth the surface and sow the seeds on the bed and cover the surface with sifted soil (about $\frac{1}{4}$ inch in thickness), and sprinkle water, using only very small streams. It is a good practice to place a thin layer of straw upon it, and allow it to remain until the young plants appear at the surface of the bed. For the purpose of forcing, it is desirable to peel a tiny bit of the seed-coats before sowing. The right place for peeling is near a sunken spot where the germination takes place. Under a favorable condition the seeds begin to germinate in three to four days. When the casing soil is too shallow, the cotyledons will sometimes appear covered by the seed-coat. In such cases those coats should not be taken away when they are dry, as it often causes some injury to the cotyledons.

"II. Potted beds. In potted beds culture practically a similar method can be applied, with the exception that pots instead of frames are used.

"Transplanting: A seedling should be transplanted twice; first, from the seed beds, either framed or potted, to a small pot (about $2\frac{1}{2}$ inches in diameter)—the purpose of the first transplanting is to prevent unnecessary growth of the plants; second, remove it to a larger pot, usually 5 to 6 inches in diameter. The first transplanting begins immediately after the cotyledons have opened. If the plants are left in the beds too long, it is very difficult to transplant them without giving any injury to the roots and cotyledons. As a matter of fact, it is very much desired by growers to keep the cotyledons on the plants until the flowering season; therefore, the growers should take much pains to keep them as long as possible.

"Fertilizers: Rape cake is generally used as a fertilizer, which is frequently applied to the soil in the form of powder, but mostly in liquid, which is thoroughly fermented. Chili saltpeter, ammonium sulphate, or potassium sulphate, etc., is frequently used as a substitute of the first named.

"Watering: The seed-beds should be always moistened until the young plants appear on the ground. After transplanting it is a usual practice to water twice a day, once in the morning and again in the day time. It is desirable to use warm water for the day-time watering.

"Supports: When the plants grow up to 6 or 7 inches high, it is absolutely necessary to furnish some supports. For this purpose bamboos or reeds are generally used. The supports are arranged in various ways, of which the following two are very common:

"A, 'Andon' type (Lantern type). B, 'Boshi' type (Hat type).

"A. Andon type. Height of the supports is dependent upon the individual tastes. Erect four or five bamboos or reeds along the inside of the pots, and connect them with three rings of bamboo.

"B. Boshi type. A piece of bamboo is bended down to the soil, thus making an arch-like form, which is then crossed with two pieces of bamboo. This type of support is especially recommended for some special varieties which have hard stems.

"For the morning-glory culture it is a matter of most importance to help the stems of the plants to climb up the supports. The most desirable time for winding the stem is during day-time, as it is very tender, while in the morning or evening it is very brittle and could not be wound without causing injury to the plants. The stems naturally twine the supports from left to right, therefore it should be arranged in that way, otherwise the stem may refuse to twine the supports.

"Try to wind the stem in the basal ring, and when it returns to the starting point, then lead it along an erect bamboo to the second ring, and wind the stem in the same way as stated above. It is desirable to check the growth of the plants when their stem encircles the second ring, and never let it grow further up to the third ring.

"Flowers usually bloom early in the morning and may wither soon when they are exposed to strong sunshine. The withered flowers should be picked at about ten o'clock every morning. For the purpose of getting seeds for next year, however, it is without saying to leave the withered flowers on the plants."—*Missouri Botanical Garden Bulletin*.

THE FERN GARDEN

(Continued from page 6)

described. Its dainty curving stem with the little triangular leaflets on either side is very lovely indeed. The stem is slender, smooth and glossy, and slightly brittle. In books it is generally said to be black, but in reality it is far from black, having many tones varying with the changing light, from plum to bronze. I have often been reminded of the stem of the Maidenhair while paring a large and well-ripened eggplant, for they possess many of the same shades. The spores are small, light brown and borne on the under edge of the leaflet, which turns back and partly encloses them in little pockets and gives a slightly puckered effect to the edge of the leaflet. This fern in spite of its very delicate appearance is quite hardy and I have several clumps which have increased from year to year. Thinking it very tender, my first clump was transplanted with great care on a dull day with drizzling rain, for fear it might become wilted. Another clump was brought in from the woods on a bright sunny day in mid-July. It was carefully carried home in a basket and planted with plenty of water as soon as possible after digging. They did not droop and seemed to take readily to the new place. About two weeks later I was much surprised to discover six new fronds starting up from one root and four from another, which developed into fluffy masses of foliage and remained so until the end of the Summer. So I have found this fragile looking fern to be one of the most hardy and satisfactory in my collection. It is most decorative and does well in middle distance or for the border and is especially effective in a large mass. I think the delicacy of the foliage is shown to greatest advantage against a wall or where it can droop gracefully over flagging or pathway, for then the shadows cast a fine tracery and add a fascination to this already fascinating little plant.

There are, of course, many other varieties of ferns, all lovely and most interesting to study and discover in their native haunts, far too many to be described here. I have only mentioned those which I have in my garden and with which I feel well acquainted. I can vouch for their beauty and their hardiness. The ferns should surely have a place on every estate, no matter how pretentious, and on every cottage lawn, no matter how humble, for they adapt themselves to all surroundings. They are always suitable and in good taste adding a charm and grace to the garden that no other plant can give.

Wistarias and Their Training

EVEN those who have least love for Japanese gardens and Japanese gardening must admire the Wistaria. Like the Japanese Cherries it is "everybody's tree," and yet how many houses does one see smothered in various, more or less effective, climbing plants, but destitute of Wistaria? Why is this? For a house with any pretensions to architectural interest the Wistarias are surely the best of all climbing plants. (Climbing plants they are, though they cannot climb on a flat surface, needing something comparatively thin round which to twist the young wood.) The growth of both the commonly-grown species—the so-called Japanese, *multijuga*, and the Chinese, *chinensis*—is vigorous without being overpowering, so that they may be readily trained to adorn rather than to smother the front of the building against which they are planted.

The "Japanese" Wistaria, as we know it, has doubtless been considerably improved by the Japanese florists, but



The superintendent's cottage at "Lyndhurst," the estate of Mrs. Finley Shepard, Tarrytown, N. Y., with the wistarias in bloom.

it is really a native of North China and probably not indigenous to Japan. It is magnificent for training over tall pergolas or on an elevated trellis. For walls it is really less suitable than *W. chinensis*, though by training main laterals horizontally and a sufficient distance apart, it may be shown to advantage there also.

The association of various habited "furnishing" plants to architecture receives much less attention than it should. A bald uninteresting expanse of walls is caused by want of appropriate detail. If a cornice would have filled the bill in the original design, the bad effect can be at least greatly mitigated by training a Wistaria horizontally to replace the missing element. Similarly, living pilasters of *Crataegus*, for example, will provide upright features where desirable.

If the wood of the past year is reduced each Winter to three or four eyes, the Wistaria will make a satisfactory self-supporting bush. Indeed, plants which have been stunted in pots in the nursery often retain the bushy habit. If they are wanted to climb, care should be taken to purchase healthy young trees with an abundance of young wood. The pruning of a climbing Wistaria is (or should be), similar to that of a trained pear tree. Laterals are taken off where required and allowed to extend reasonably each year until their allotted space is filled. The sub-laterals are Summer pruned to ten or a dozen leaves—if this is not done there will be yards of thin growth tangled all together—and in Winter spurred back to the flowering

wood. With plants trained on wires to give the "floral bell tent" effect so well known to visitors to Kew Gardens, the training may be more informal, but the same principles will apply.

The common form of the Chinese Wistaria has flowers of a delightful mauve tone, so distinct as to be a commonly used color shade. The "Japanese" species is, in commerce, a much more variable plant, but if one can but obtain them, its best forms are darker and even more desirable as regards coloring than the Chinese. The length of the racemes in this species is extraordinary. The rosy form—*rosea*, is well known, but less beautiful than the mauve purple ones and there is a pure variety which is rather shorter in the raceme, though still long, and later to flower. The white form of the Chinese species is, strangely enough, earlier to flower than the typical plant. The general experience is that it is less free to flower than the typical mauve.

Like the Grape Vine the Wistaria develops quite a trunk and butt with age. A diameter of more than 18 inches is not uncommon for the trunk of an old specimen. The Wistaria, fortunately, is comparatively long lived. Its introduction to English gardens dates back just over a century (1816), and some specimens now in existence must be close upon a century old. The oldest specimens, however, almost invariably show signs of decrepitude with hollow trunk and diminishing foliage, so that the effective age of the plant may be placed at from eighty to a hundred years.

Bush Wistarias are, as a rule, planted to associate with water which, of course, redoubles their charm by reflecting the glorious trails of blossom. One feels that had these beautiful woody climbers been known in Tudor days, many of the pleached avenues of Lime and such like would have been carried out in Wistaria. There really seems no reason, therefore, why those with old gardens (or with gardens to an old house) should not plant Wistaria to be trained in this manner. They would ultimately become almost, if not quite, strong enough to stand alone. It is not quite evident why, when reconstructing an old garden, we should be bound by the limitations which handicapped our forefathers. Surely it is better to build upon the past with whatever of old or recent introduction will best serve the end in view! The Wistaria is assuredly an old-fashioned flower. Even though it has been cultivated for a mere century in Britain, it has been grown no doubt by the gardeners of Japan since long before Tudor times and it has that peculiar sophistication characteristic of plants long in cultivation.

As previously stated, both the Wistarias commonly cultivated in this country are of Chinese origin. Though sufficiently distinct, they are obviously closely related. There are, however, other species in existence of which two at least are Japanese. Of these the only one of which much is known, *W. japonica*, was introduced as long ago as 1878. Compared with *chinensis* or *multijuga*, this species is a pigmy with numerous small white flowers in racemes 6 inches to 12 inches. It is said to provide a wonderful spectacle when smothering a large bush or small tree, but is seldom seen in cultivation in this country.

The American species, *W. frutescens*, bears its flowers in short terminal racemes, often held erect. The flowers are pale lilac in color, but it never gives a very striking display because the racemes do not display their beauty simultaneously. Commencing to blossom in June, it continues more or less in flower until the end of Summer. A form of this or, possibly, a distinct species, variously

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Teach Horticulture To Foster Love for Plants

P. M. KOSTER

SLOWLY and surely a taste is developing in America for plants and flowers, a love for horticulture. I have seen great changes in the twenty-five years I have been coming to this country. I think that is our duty to further and to foster the love for plants here. We must have something in the future to which to devote our time. More and more the people are working fewer hours. We must try to give them something other than a desire to attend the movies and to speed along the roads at the rate of fifty miles an hour. This can only be done by educating them to love plants. Allow me to point out to you what other countries are doing, in order to give the necessary horticultural instruction and education. Naturally, I am speaking about Holland, the country with which I am most acquainted.

In the first place, there is elementary horticultural training in the Winter courses, for which the state gives a subsidy. Each course extends over two Winter semesters. The teaching is done by the state school teachers, who have acquired the necessary qualifications; qualified practical gardeners are also employed to do the teaching. Students may enter every two years and must not be under fifteen years of age. The course comprises: The elements of natural science, including plant diseases and pests; manures, soils, treatment and improvement of the ground; fruit culture, vegetable and flower culture, arboriculture and horticultural drawing. As far as possible, the instruction is adapted to the requirements of the particular kind of gardening in the location.

Secondary training in horticulture is given in five horticultural Winter colleges. One is in Aalsmeer, flowers; one in Boskoop, nurseries; another at Lisse, bulbs; at Naaldwyk, fruit; at Hoorn, vegetables, and at the Horticultural College at Frederiksoord. The object of these colleges is to give the necessary horticultural education to young gardeners, florists, nurserymen, etc. The schools are divided into two classes and the period of instruction covers two Winter semesters, from October to April. In the Summer months these young men work with their various employers; this way almost everybody can afford to attend these colleges.

Higher horticultural education is given in the High School for Agriculture, Horticulture and Forestry, at Wageningen. This is a three-year course and embraces physics, meteorology, plant physiology, mineralogy and soils, chemistry and agricultural chemistry, botanical terminology, botany, drawing, surveying, arboriculture, fruit growing, vegetable and flower culture, civil law and practical work.

Besides all this valuable knowledge, foreign languages are taught, which is a great assistance to our horticultural education, as it enables us to read horticultural papers in foreign languages. It also prepares the young men for their extensive travels in foreign countries, where they generally go after learning their trade at home.

It is not only in Holland that this horticultural education is given; it is the same in England, Germany, Belgium and France.

That sometimes the knowledge of a foreign language is directly responsible for horticultural gains is illustrated by the way Koster's Blue Spruce was found.

My father, who was the great, great-grandson of a nurseryman, soon understood that in order to make Boskoop a horticultural center, we did need a larger area than Holland to sell our products, and father did all he could to

induce the government to devote time and money to horticulture and to the teaching of foreign languages. He himself had acquired, through self-study, a considerable knowledge of English, French and German. One day, reading in the *Revue Horticole*, father saw a description of the beautiful Blue Spruces of the Rocky Mountains, and read that the botanical garden at Zurich had received seeds of some of the finest specimens. Immediately father wrote for some seeds, received some and one of the seedlings was the Blue Spruce which now is universally known as Koster's Blue. If father had not been able to read French, would the plant have come to life? Would others have seen the great beauty of this plant and would it have been propagated?

This is not the only instance; other plants have been described in foreign papers and propagated. These, otherwise, would have disappeared unnoticed.

In the schools a spirit of competition in growing flowers is created and the schools have many expositions of flowering plants, which imbue the youngsters with a love for plants and flowers. Who is able to grow the best? Imagine the pride of a little girl from poor parents bringing in a beautiful plant and winning first prize!

I think it is our duty to help develop this love for flowers and plants, and show each and all people what can be done with flowers and how they make our life richer, how trees and shrubbery make our homes more attractive.

Conditions have already very much improved since I came to this country first. But we are not doing enough. Let our horticultural associations get busy and our women's clubs. Let them create funds to appoint—let me call them horticultural preachers, who, armed with a great love for plants and with lantern slides, go out and show the people (not the upper 400) what can be accomplished with little expense and labor; show them how the board fences must be replaced by well kept hedges, how a few climbing roses will improve the appearance of their homes, how a few beds of inexpensive bulbs, some perennials, will make their homes attractive, and then—watch how their surroundings will make for a happier life.

We must awaken the vast multitudes to the realization of the needs of plants and shrubs and flowers; we must create in the minds of all a desire to improve themselves, their properties, their communities. This cannot be done by lectures before horticultural clubs and societies; those present there do not need to be awakened. It is the daily paper, the small local paper which must take this task to heart.

One of the saddest features of the lack of horticultural training is the condition the trees are in, lining the streets in the cities. The authorities in charge evidently do not see the need of pruning when the trees are young, and many trees could still be saved if they were treated right. If I compare the almost loving care which is bestowed on trees in European cities, how they are Summer-pruned and Winter-pruned until such time that they can take care of themselves, I feel really sorry for their American brothers and sisters, which, once planted, do not get any care thereafter. Many of you have seen the beautiful Elms lining the streets in Holland, the Linden in Berlin, the Planes in London, the Horse-chestnuts in Paris, all well shaped, symmetrical trees, with stems the same height, forming beautiful avenues, a sight to behold.

Now, what is the remedy for all this? Horticultural

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Insects and Plants

WILLARD N. CLUTE

IT sometimes happens that the gardener, impressed with the visits of butterflies and bees to his flowers, speaks of "beneficial insects," but a more careful consideration of the facts might lead him to conclude that there is no such animal. First, last, and all the time, the insect world is absorbed in its own affairs, ever seeking food, shelter, and a place to breed; always taking what it can and often nearly or quite exterminating the organisms it preys upon. And it has always been thus. Although the flowers of the present produce the nectar and pollen utilized by various insects, and in a sense might be said to provide them with food, it is no voluntary act on the part of vegetation. The insect merely takes what it wants; indeed, it is probable that the activities of the insects are responsible for an increased secretion of nectar in flowers, just as man has, by breeding, increased the secretion of milk in cows.

It is undoubtedly true that our planet began as a flowerless world, and that when the first insects appeared on it they were obliged, like other forms of animal life, to feed on the plants. Representatives of these early races are still with us in the form of bark beetles, wood-borers and the like. The young or larval stages of the great majority still feed on plant tissues, but the mature insect in higher forms has developed a taste for more refined kinds of food. The first flowers were far from being the showy objects we think of when the word flower is mentioned. They appear to have been exclusively pollinated by the wind, and were much like those of the pines, poplars, grasses and hazels of the present, which afford no encouragement to nectar-feeding forms.

Although wind-pollinated flowers do not, as a rule, produce nectar, it is probable that they have always been visited more or less by bees and other insects in search of pollen. As a matter of fact, pollen still interests the insects, for many flowers that are entirely lacking in nectar are still favorite feeding grounds. The nectar, so commonly secreted by flowers, is not exclusively a floral product. The leaves of many flowering plants also excrete it, notably those of the little partridge pea and the cotton plant, and the outer bracts of the peony are widely noted for this feature among black ant circles.

The regular secretion of nectar by the floral parts opened an entirely new chapter in plant evolution. With insect visits reasonably certain the plants were assured that their pollen would be carried directly from flower to flower and were thus able to make several changes looking to greater efficiency. Pollen became sticky so that it would adhere to the visitors, and at the same time stamens and carpels became of different lengths, or ripened at different times, in order to prevent self-pollination. With the production of a perianth to protect the nectar and guide the insects to it, fewer stamens were necessary to accomplish pollination and the plant saved in pollen more than it lost in the production of nectar. Finally the appearance of flowers turned sidewise ensured that the insect would alight in a definite part of the flower and thus could be covered with pollen by still fewer stamens. Thus the stamen number was further reduced until we have whole plant families with but one or two stamens to a blossom and some that manage to carry on business by means of only half a stamen.

The accommodating blossoms have provided in numerous ways for the storage of nectar until the favorite insect calls for it, and have found ways of protecting it from other insects, but even this consideration fails to

impress the greedy visitors which all too often bite through the walls of the nectary and abstract the sweets without pollinating the flower at all. It is small wonder, therefore, that a number of plants with showy flowers have other and less conspicuous ones that never open but make use of their own pollen and produce all or most of the seeds.

Many species of plants have now become so exactly adapted to the visits of a given insect that they fail to set seeds if it is not present. The absence of an insect from a region, therefore, may limit the distribution of various plants in it. More far reaching still, the life of the plant may be so bound up with that of another, through the insect, that the absence of one may limit the other, as in the case of one plant which serves as the host plant to the larval insect that in the mature state pollinates some distant species.

The more usual way in which insects act to limit the spread of a plant species is by exterminating it in feeding upon it. It is quite likely that the potato plant would be exterminated in regions where the potato-beetle is abundant if man did not constantly fight its enemy. A redeeming feature of the picture, however, is the fact that the greedy insects are not content to feed exclusively on plants, but have developed a disposition to eat one another. Even man, himself, does not entirely escape pests of this nature. In numerous instances, however, the safety of the plants lies in this fondness of one insect for another. The ichneumon flies and lady-bugs are ever on the search for plant-eating forms, and the dragon-fly is all that his name denotes with reference to mosquitos. In the larval state the dragon-fly larvæ eat mosquito larvæ, and those that escape and assume the adult form are taken care of by the grown-up dragon-fly. It seems likely that we shall come to depend more and more on the aid of insects that eat others to protect our plants from harm.

Looking at the subject as a whole, it seems just retribution that overtakes the insect world when the plants turn the tables on them and become the eaters instead of the eaten. The sundew with a dozen leaves like small red hands, lies in wait for its prey and, clutching it, turns its leaves into impromptu stomachs and digests its captives. The pitcher-plants provide little wells within their hollow leaves and calmly drown the insects, in some cases cunningly enticing its victims by sugary secretions with which is mixed a substance that stupefies them. There is a long line of these insectivorous plants—butterworts, catch-flies, bladder worts, Venus' fly-traps and the like, but insects are so numerous and multiply so rapidly that they are not much impressed indeed, certain thrifty specimens, eager to capitalize the misfortunes of their fellows, push into the pitcher-plant leaves and lay their eggs in the decaying bodies of its victims.

Doubtless God could have provided us with better fun than hard work, but I don't know what it is. To be born poor is probably the next best thing. The greatest glory that has ever come to me was to be swallowed up in London, not knowing a soul, with no means of subsistence and the fun of working till the stars went out. To have known any one would have spoiled it. I didn't even know the language. I rang for my boots and they thought I said a glass of water; so I drank the water and worked on. There was no food in the cupboard; so I didn't need to waste time in eating.—*Sir James M. Barrie.*

The Orchid

FOR many persons Orchids are associated with thoughts of luxury and opulence, based, no doubt, on the magnificent blooms of the florist shops and the still more gorgeous flowers seen at exhibitions, writes E. I. Farrington in the Christian Science Monitor. Yet many Orchids are modest and shy. The Lady's Slipper of northern woodlands is an Orchid as truly as the giant *Cattleya* of South America. Even the most splendid members of the family hide themselves in the depths of mighty forests, blooming unseen in such vase and colorful shows as have never been staged by men.

Although all Orchids possess practically the same curious physical structure, by which they are set apart from every other plant, yet they are divided into two great classes with totally different modes of living. There are, first, the Terrestrial Orchids, which grow directly in the earth; these are the only kinds found in temperate regions. There are then the Epiphytal Orchids (using a name that falls strangely on unaccustomed ears), which drape themselves over rocks and trees, reveling in heat and moisture, and living often in swamps so dense that hardly a ray of direct sunlight ever penetrates to them. They are not really air plants, although often called so, and neither are they parasites, although they may depend upon some other form of life to hold them erect. Their nourishment comes largely from the mineral matter that collects among their roots.

Orchids inspire no such sentimental feelings as the violet or the rose, but they exercise an elusive fascination above all other flowers. The lure of the Orchid is like the lure of gold. It will tempt men to any length in hardship or exposure. No romances in the annals of horticulture surpass those woven around the world-wide search for Orchids, a search that still goes on, for regions yet remain which the collector has not explored and where untold treasures may await his coming.

For a long time the rare Orchids of the tropics were sought mostly in the interests of private collectors. Then, as more about their culture was learned, commercial growers began to gather them in increasing numbers. So a great industry was gradually built up, thousands of plants being sent every year to the British Isles and to the United States for the trade.

Whole sections in South America have been stripped of their Orchid wealth, but the southern continent is vast and new hunting grounds are constantly being reported. Moreover, the Federal Horticultural Board at Washington has forbidden the importation of Orchids into the United States except by special permit, and then only for propagation. This has stimulated home production, but on the other hand has proved a sad blow to private collectors.

In England, where there are no import restrictions, the seedling raiser is being depended upon far more than ever before, while fewer and fewer new species are coming from the forests. England, however, still imports tons of commercial Orchids, particularly *Odontoglossums* and *Cattleyas* from South America. All that great continent from Mexico south is rich in Orchids, which were known and loved long before the Spaniards came to substitute a harsh civilization for the simple life of the natives. Early historians tell us that choice flowers, and especially Orchids, were daily tributes to the Mexican rulers.

Columbia, Venezuela and Brazil are exceptionally prolific, especially in *Cattleyas*, the type of Orchid most commonly seen in the florist shops of America.

Although *Cattleyas* are the most popular Orchids in

America, the English public prefers *Odontoglossums*, which abound in various parts of the South American continent, fully 100 species having been found in the Andes. If they could be grown as well in the United States as in England, they might find the same high favor, but the Summers are too hot and too dry for producing perfect blooms. On the other hand, the clearer skies give the Americans better *Cattleyas* than can be grown in the British Isles. At their best, it is difficult to choose between them. *Odontoglossums* are often called the loveliest flowers in the world. Yet *Cattleya Dowiana* has been described by an Orchid expert who knows them all, as the "most gorgeous, the stateliest, the most imperial of all flowers on this earth."

While intrepid plant hunters are seeking the hiding places of the *Odontoglossums* and the *Cattleyas* in South American countries, other men, equally venturesome, are roaming India and other Eastern lands. *Cymbidiums* are a particularly important feature of their quest, although these Orchids are now being propagated readily in Europe and America. Until 1900 few *Cymbidiums* were in commerce. Then a species was found which soon appeared in many variations and proved easy to grow, flowering in three or four years. Now these Orchids are among the kinds commonly offered by the florists and are remarkable for their long keeping qualities. They will last for three or four weeks in water and for two or three months on the plants.

For that matter, the flowers of most Orchids will remain fresh for a month or more if not pollinated. Indeed, there is a marked dignity and moderation in all the processes of the Orchid. The capsules wherein the seeds repose may not open for many months to let them free. Nature does her best to perpetuate the plants, however, for there will be from a thousand to a million of these seeds in each capsule.

WISTARIAS AND THEIR TRAINING

(Continued from page 9)

called *W. frutescens magnifica* and *W. Macrostachya*, bears larger racemes and is in every way a better plant.

The propagation of *Wistaria* is relatively easy. They may readily be layered or cuttings of the current season's wood, if removed with a heel as soon as moderately ripe, will root satisfactorily.

As purchased, the plants are almost invariably grafted. Where grafting is carried out on to roots of the same species, it is comparatively innocuous, but plants on their own roots are safer. Grafting is easily carried out in spring under glass with a little bottom heat. It is truly astonishing, however, how grafting persists as a means of propagation for many plants which increase readily, not only from layers, but from cuttings.

In favorable seasons, seeds ripen freely and are easy to germinate. The seedlings do not, however, as a rule, produce very good forms. Seedlings of *W. multijuga*, in particular, are apt to be exceedingly "washy" in coloring and comparatively short of trail. If a good type be secured from seed, it has naturally abounding vigor. Seedlings serve the nurseryman for stocks on which to work better types.—The Garden (British).

He who reveals to me what is in me and helps me to externalize it in fuller terms of self-trust, is my real helper, for he assists me in the birth of those things which he knows are in me and in all men.—W. John Murray.

The Greenhouse, Month to Month

GEORGE F. STEWART

THE season has arrived when many plants need a general overhauling, especially if one has a tropical house. Late January and early February is as good a time as any to pot or propagate many of these plants. Nice clean tops of *codiceum* (or to take the more popular name *crotons*) should now be selected for propagation. The best method we have found is to root them on the plant. Remove the bark by girdling, where one wishes the top to root. Cut the bark clear round in two circles, about half an inch apart, and use a two-and-three-quarter-inch paper flower pot, which is easy to keep in position by tying to a stake. Get the girdled part well down inside the pot. Use a compost of sphagnum moss, sharp sand, and good loam in about equal parts with some powdered charcoal added. Pot firmly, using great care, as it is very easy to snap the wood at the girdled part. Keep the compost damp all the time until the top roots, which will be in about a month. In a regular tropical house temperature should be 65 deg. at night with a 15 deg. rise during the day. I forgot to mention above that the bark between the two girdled parts should be removed, which is very easily done as it comes off clean. By this method of propagation, one will hardly ever lose a leaf, if, before removing the top from the parent plant, said plant is allowed to become quite dry at the root, keeping the compost damp around the top that is rooting. After the tops are well rooted remove them and pot for a first potting in a four-inch pot in a light compost. Keep them close, in a humid atmosphere, until they begin to root freely in the new compost. We have grown plants four feet high in a six-inch pot with leaves furnished clear down to the pot in one season, that is, from the time of propagation until the following Fall.

If large specimens of *cordylines* (*dracæna*) are required they can be rooted the same as *crotons* by girdling. Nice small table plants, however, may be had in one season by cutting up the woody stems in pieces, about two inches long, covering them with sand in a propagating bed that has 80 deg. bottom heat. The shoots start from an eye in the old wood, and when they have developed a few leaves, may be removed with a heel and rooted as any other cutting, and potted along as they require it. *Dracænas* like a good fibrous loam to grow in, adding about one part leaves to three parts loam with enough sand and charcoal to keep the soil sweet and porous. Add also about a third of dry cow manure to the compost.

Alocasias, to grow them well, must be turned out of their pots each season, and all the old material shaken gently away from the underground stems and roots, and potted. They grow well in a mixture of equal parts of *osmunda* fern root, sphagnum moss, and the fibre of loam with a good sprinkling of charcoal. Mound them up a little in their receptacle. They may be fed a little when growing vigorously.

Anthuriums are divided into two sections, those grown for the quaint shape and beauty of their flowers, and the other section for their foliage. Both sections grow well in compost similar to *alocasias*, only adding more sphagnum moss. *Anthuriums* are also strong rooters, but may be grown in the same pot (if mounded up with sphagnum moss) for two years. *Anthurium Scherzerianum* and its varieties, by judicious treatment, can be grown into hand-

some specimen flowering plants, which by their striking appearance when in flower will always command attention and admiration.

Marantas, now most known under the name *calathea* (the difference between the two being botanical), were once very popular plants, and around Boston twenty to thirty years ago, very fine specimens were to be seen. Where a tropical effect is wanted in some warm corner of the conservatory, these plants, with their fine colored markings, are among the best to be used. They now need attention at the roots and should be examined to see that their drainage is all right. They may be grown in the same pot for several years, in fact, they do not like overpotting. The loose soil may be rubbed off the ball which can be easily done, if they have been kept on the dry side for the last two months. A compost of equal parts of the fibre of loam, half decayed flaky leaves, drier cow manure, with enough sharp sand and broken charcoal to keep the whole in a porous condition is what we have found they delight in. *Marantas* do not like hard potting, just moderately firm. Give them plenty of room to develop their foliage and keep them clear of insects, an easy matter, since the advent of hydrocyanic gas, as a fumigant.

All these tropical plants, noted in the above remarks, like a humid atmosphere and the paths and under the benches, also between the pots, should be kept in a moist condition. Coal ashes we have found are best for covering the benches to set the plants on. There is something about them that is congenial to plant growth, far more so in my experience, that the more clean and artistic looking pebbles, which are commonly used for that purpose.

Adiantum cuneatum and its varieties are very useful in six- and eight-inch pans when grown hard, that is, giving plenty of air when severe Winter weather has gone by and not shading them heavy in Summer. Plants that have been two years in the same receptacle may be divided in two and potted in a good fibrous loam with some ground oyster shells and sand added. If grown in a good house and given plenty of room they will make nice plants next Fall. A large well grown specimen is also a handsome sight and there is generally some corner in the mansion where they look well for a week or two.

There are many other varieties of *Adiantum* that are seldom seen of late years in greenhouses. A few varieties such as *caudatum*, *decorum*, *tenerum*, *trapeziforme*, *gracillimum*, *Williamsii* rise in mind as I write. These all may be grown into fine plants, and are very decorative. The variety *Farleyense*, supposed to be a form of *tenerum*, would need a special article by itself to describe the mode of propagation and culture. *Adiantum*, *Glory of Mordecht* or *Gloriosa*, is in my opinion inferior to the old *Farleyense*. I have never yet seen fronds or plants of it the equal that the late David Allan and David Fisher used to grow, when I worked under them thirty years ago near Boston. Probably some of our young men will say, "Oh yes! There were giants in those days." However, if need be we can produce the witnesses. Many other ferns such as *Davallia*, *Gleichenia*, *Gymnogramma*, *Lomaria*, etc., also the *Selaginellas*, of which there are quite a number of fine forms, need looking over but do not overpot any of them. Large pieces, if they have been well potted, will go several years in the same pan or tub they may be in.

The drainage, however, should be examined frequently and a little top-dressing given at this season, and after they are growing good, well fed with stimulants, using a little variety.

Large plants of *calceolaria* that are wanted for exhibition in May, may now be given their final shift. The great thing is to keep these plants cool, thirty-eight to forty at night is warm enough unless wanted to flower early. The *stewartii* type we can flower in July, by pinching, potting a few days after they are cut back, and shading. This is the best season to propagate this type, and if large plants are wanted another year, carry over the later struck ones in five- or six-inch pots, or even larger, according to the size desired at flowering time.

Any large *fuchsia* plants that have been carried over may now be trimmed into shape. Pyramid shape is ideal for *fuchsias*, and of course, they look very pretty as standards. Keep the growths pinched until eight weeks before they are wanted to flower. Cuttings of these plants that were rooted in August, by February 14 should be fit for their flowering pots. We find nine- and ten-inch pots big enough for the first year. The ball of the old plants may be reduced and potted in the same pot, giving a larger shift later if they start well.

An early batch of *achimenes* can be started now. Space the rhizomes in a tray, the bottom of which has been covered with ground up sphagnum moss. Cover them lightly with a mixture of leaf mold and sand. When the young shoots are about two inches high, space them in the pot or pan they are to be grown in. By starting them into growth first in the flat, growths of an equal strength may be potted in each pan, which will make a more uniform plant when flowering. They grow well in equal parts of loam, leaf mold, and sand, in a night temperature of 60 deg. They must always be lightly shaded from the sun and carefully watered in their earlier stages, never allowing water to lie on the foliage. The more slender varieties make beautiful hanging baskets.

Increase, or renew the stock of *Bouvardia* at this season. They form plants from root cuttings. Bear in mind, however, that slight variations in color are likely to happen with root cuttings. Top cuttings from the young growths root in about a month, if one has a good bottom heat in the propagating bed, and they come true to color.

Batches of cuttings of the general run of bedding plants should now be secured and rooted, such as *coleus*, *heliotrope*, *begonias*, *ageratum*, *lantanas*, etc.

Poinsettias, after they are past flowering, may be laid on their sides near the pipes under a greenhouse bench that is run around 50 deg. night temperature.

Euphorbia Jacquinæflora or *fulgens*, which is also another fine Christmas plant, must be kept on the bench and carefully watered after flowering. A second crop of flowers may be secured if desired, and after that, growing shoots will start on the stems, which when about three inches long, will make ideal cuttings for another season. These two *Euphorbias* are among the best for Christmas decoration, but many do not care for them after that season has passed.

Nerines are now making their growth, feed them well until they show signs of having completed their growing period. Keep them on a good light bench in a cool temperature. I believe these plants will be more largely grown in the near future. Professor Sargent, near Boston, has the finest collection of *nerines* I know of. His veteran gardener, Charles Sanders, is very successful with them and has raised quite a number of new crosses.

Our plant of *Mackaya Bella*, after a slight drying process for the last two months, has now set its flower buds and will be given plenty of water in which soot

has been mixed. After flowering it will be potted and pruned into shape.

Put in leaf cuttings of the beautiful *Saintpaulia ionantha*. Small plants when in flower are most useful subjects for table decoration. They root best in an open propagating bed, as the fleshy leaves are apt to rot in a close case. *Saintpaulias* must be grown under shade and water never allowed to get on the foliage.

Calogynes are showing their flowers scapes, and will be benefited by more water. Keep it away from the young growths, as if moisture gets into them they are likely to decay.

Many *cypripediums* are flowering at this season. They enjoy a temperature around 50 to 55 deg. and a moist atmosphere. A very light shading as the sun gets stronger is necessary. Dense shading will result in weak foliage and poor flowers. *Cattleya Percivaliana* is now finishing flowering and *cattleya triana* is commencing. A night temperature of 50 to 55 deg. we find is all right for these orchids, and a very slight shading even in Summer. I never allow them to get too dry, even when seemingly at rest. *Odontoglossum crispum* is now making its growths and should have plenty of moisture in the house at all times. Give them plenty of water, but do not keep them in a soggy condition. Rain water, of course, is best for them. *Calanthes Macwilliamsii*, *Orpetiana* and *Ryanii* are in full flower with us, the earlier ones have gone to rest.

Ventilation is a very important part of the greenhouse man's work at this season. We quite often have zero and much lower temperatures, which necessitates heavy firing, and when the sun comes out the thermometer will mount rapidly. Opening of the ventilators must be done gradually to avoid draughts, and one has to make the rounds of the different compartments quite often for fear of too sudden changes in the temperature. Damping of the floors will help to keep the house cooler, if done frequently during the earlier part of the day. It is better to let the temperature run a little higher with sun heat, when the temperature is low outdoors.

Grapes that have been started early should by the middle of February have had the temperature raised gradually until it has attained 60 deg. all night; allowing it to rise with sun heat; in middle of the day to 80 deg., and then gradually reducing the ventilation as the sun goes down. They should have been sprayed lightly on all bright days two or three times. Borders will need examining frequently to keep them in a uniform moist condition. Watch the young shoots as they break and thin out all the weaker growths, leaving the strongest one to each spur. The rod should be tied in position as soon as an even break is secured all over the vine.

Early peaches and nectarines will also be well advanced and an eye must be kept on the wood that it does not get overcrowded on the trellis. Thin out all the weaker fruits when they are about the size of small hazlenuts. The foliage may be sprayed over until the fruit begins to ripen. Be sure that the pot fruit does not suffer for lack of food and water. The roots being confined into small space, dry out very often, and frequent waterings leach out the plant food.

Keep up a succession of forcing vegetables if room is available. The annual spinach will grow cool along with lettuce. Beans and tomatoes can be kept as high as 60 deg.

Keep thinking ahead as there will be plenty to take up one's attention as Spring approaches.

When any duty is to be done, it is fortunate for you if you feel like doing it; but, if you do not feel like it, that is no reason for not doing it.—*W. Gladden.*

Work for the Month in the Garden

IN nearly all gardens, January is the month of completing odds and ends, for little can be accomplished in the average garden except to put everything in order for the coming season. This, however, is quite important in itself, for it will lighten the work of the busy days ahead. Tools and implements can be cleaned and sharpened; the stock of insecticides, spraying materials, and fertilizers replenished; flower stakes, pea brush, and bean poles made ready for future use; and the manure prepared for the hot beds to be used next month, though care must be taken to protect this material from snow and rain. For good hot beds, there is no better material than fresh horse manure which contains a fair portion of strawy litter. If there is not sufficient manure, leaves may be used as a part of the mixture; in fact, the beds can be made wholly of leaves. We do not, though, recommend that more than one-half of leaves be used if manure is at all available. A point of importance in connection with hot beds is to have the material in a fit condition, sweet, and neither too wet nor too dry. There should be no water when the material is held tightly in the hand. After being turned over a few times at intervals of two or three days, the material is then ready for the pit. At first pack quite firm, and after the manure has warmed through again within two or three days' time, tramp it thoroughly. Soil to the depth of six inches should be applied if the seed is to be sown in rows on the beds, but a thin layer of sand or soil should be applied if the seed is to be sown in flats. Hot beds have two distinct purposes; they may either be used to grow a crop into maturity, or merely to give it an early start to be planted outside later.

During the month of January our efforts are mainly expended in the protection rather than the production of vegetables. Careful inspection should be made every so often of the supply stored, and decayed specimens should be at once removed.

If greenhouse space permits, an early start can be made with vegetables, and such crops as carrots, beets, cauliflowers, spinach, and salads sown in a temperature of 40 to 45 degrees. Tomatoes and string beans, which can be raised either in benches or pots, require a somewhat higher temperature, an average of 55 degrees.

Peas and potatoes may also be started in a temperature of about 40 degrees in the bench of a cool house or in pots, with the temperature increasing with their growth. A light porous compost is essential in starting these crops early, as holds true with the majority of young stock during the Winter months. Well rotted cow manure and turfy loam, or loam and leaf mold in equal parts, is excellent for potatoes at this time. Peas thrive well in a compost similar to that required for the successful cultivation of potatoes, to which may be added a little bone meal. If grown in pots, the peas and potatoes may be placed under the bench of a cool house till they are a few inches high. It is, of course, essential that there be good drainage in the bottom of the pots.

With February, work can be commenced in earnest, and as sowings of certain varieties of vegetables and flowers are made, we should think over the successes and failures of the past year, and make plans to avoid the latter in the new season. Some plants may not have thrived because the soil was not suitable, because the

ground was not carefully fertilized, or because seed was sown too early or too thickly. The latter often is the cause for disappointment in growing crops, for many people feel it necessary to empty a whole package of seed when only half is all that is required for the space allotted. The seedlings suffer from over-crowding and it is inviting failure to begin with weak stock. A small number well grown, either of flowers or vegetables, is of finer quality and more productive than a quantity not properly developed because of lack of room.

For outdoor planting, cabbages, cauliflowers, celery, egg plants, onions, peppers, leeks and parsley can be started in the hot beds during early February. Seeds can then also be sown of beans, radishes, lettuce and cucumbers, and annuals for the flower garden may at the same time be sown. For these early crops, the soil should be fairly rich, containing a good proportion of sand and humus. While snow around pits and frames in which are dormant plants is sometimes beneficial, plants in hot beds must have light and air. Frames in which are growing plants, should be ventilated when the weather permits, and decaying foliage carefully picked off.

If there is still pruning of fruit trees to be done, the work, if at all possible, should be completed in February. The pruning of fruit trees is to maintain a proper balance of growth, and to produce fruit of a better quality, and while severe pruning at the time of planting is a wise practice, it is advisable to prune less severely thereafter, especially in the case of stone fruits. A "smother" should be made of all prunings, as it produces an ash which is valuable for fertilizing. It is also the best means of disposing of garden refuse. Spraying of the orchard, ornamental trees, and shrubs for scale insects or fungoid diseases should be done on mild days.

TEACH HORTICULTURE TO FOSTER LOVE FOR PLANTS

(Continued from page 10)

instruction! We must demand that horticulture be taught in schools and high schools, and that a number of horticultural colleges be established. We must ask everybody to help in this movement—the city government, the state, the federal government and, if I am not mistaken, we shall be able to accomplish something in the near future. We are scrapping battleships. We are limiting the building of fortifications. Must we not build something else instead? We must build up the love for the land, the love for the country, the love for our homes—that love which prompts a man to stay on his property, however small and poor it may seem to others—the property where he saw his children born, where he planted his trees when he was young, where he grows his flowers. If we assist in this upbuilding we shall accomplish more, create more patriotism than ever warships or armies will accomplish. It is this love for a country which makes the country safe, makes it unconquerable.

No man is born into the world whose work is not born with him. There is always work, and tools to work withal, for those who will,—*H. W. Beecher.*

Foreign Exchange Department

THE COMMON SPINDLE TREE (*Euonymus europæus*).—If of little or no attraction when in bloom, this low-growing tree in point of color and graceful beauty can hold its own in Autumn with the best introductions from other climes. For this reason it should be planted—freely—in large gardens and on the outskirts of ornamental woodlands. Its beauty was never more apparent than at the present time, for whether on the fringe of the home woods, in the garden, or by the waterside, groups of this graceful tree are alive with color, every tree, whether large or small, being a study of rose pink, the dainty twigs carrying a load of loosely-arranged capsules, which—as they age—will burst and disclose their bright orange-colored seeds, and thus enhance the beauty of the plantations. The branches provide excellent material for indoor decoration, and these are rendered even more attractive by the few remaining leaves, which are suffused with purple.—*Gardening Illustrated*.

RHUS OSBECKI.—A batch of this striking Sumac attracted my attention recently by reason of its large and gorgeous orange red and yellow leaves and curious red-winged leaf stalks. I have on previous occasions admired this as a small tree when in its Autumn dress, and also when covered with its handsome panicles of yellowish flowers, which appear during July and August, each panicle being from 7 inches to 10 inches long. Its great attraction however, lies in its richly-colored leaves, which each measure 15 inches in length and 10 inches wide from tip to tip of the leaflets. In their present state these are decidedly handsome. The plants in question were in lines and about 5 feet in height, and there being several together—in this way—the effect was considerably enhanced when compared with an isolated specimen. This distinct Sumac is a native of China and Japan, and should be grown by all who value rich Autumn color. If cut to the ground each year the leaves resulting from the vigorous young growths are of considerable size, and produce fine effects.—*Gardening Illustrated*.

CRATÆGUS PYRACANTHA.—During the summer the Fire Thorn may pass unnoticed, but when late Autumn arrives its clusters of deep red-orange fruits at once arrest attention. Nor is their display a fleeting one, for the berries last in good condition until well into December in a favorable season. *C. Pyracantha* is perhaps seen at its best when used for furnishing a wall, which its small, dense foliage soon covers. The Fire Thorn can be specially recommended to those who live in towns or in smoky districts, for it does not appear (unlike many other berried plants) to object to town conditions. It is a pity that in towns—generally speaking—berried plants find so few admirers, for they brighten up what would be otherwise rather dingy surroundings after the flowers that give color have succumbed.—*Gardening Illustrated*.

HAWTHORNS.—Many people pin their faith to the double-flowered forms of the common Hawthorn, and they are certainly very beautiful, but they have one great defect, they produce no fruit. Possibly the best of the doubles is Paul's Double Scarlet, a variety with rich, bright red flowers, but *alba plena* and *candida plena* with white, and *rosea plena* with rose-colored flowers are also good.

The Washington Thorn, *C. cordata*, is easily distinguished from all others by its rather small leaves and late flowering period, the white flowers being at their best in July. The fruit is small, scarlet, ripens late, and often remains on the tree throughout Winter. It grows 30 feet high.

C. Azarolus, a native of the Orient, is a very remarkable Thorn, not so much by its white flowers as by its fruits. The fruits are about 1 inch in diameter, apple-like, yellow, orange, red or white; fleshy, sweet and edible. Another Thorn with large edible fruits is *C. tanacetifolia*. This has very hairy leaves and shoots, short stiff branches, white flowers and yellow fruits 1 inch in diameter which bear green, leaf-like bracts on the surface. It is a native of Asia Minor and Syria. In leaf *C. orientalis* is rather like *C. tanacetifolia*, but the leaves and fruits are smaller, the fruits also vary in color from yellow to orange and red.

C. sanguinea, from Russia and Siberia, bears rather small, glossy, bright red fruits, and is a good kind to select. *C. prunifolia* is often regarded as a hybrid between *C. Crus-galli* and *C. macrantha*. It forms a bushy-headed tree 20 feet high, and bears white flowers and deep red fruits freely, but is perhaps most remarkable by reason of the rich autumnal tints of the foliage, which embrace many shades of red, from rose and bronze.—*The Garden*.

THE ORIENTAL BITTERSWEET.—Of all the Autumn fruits few can compare with those of *Celastrus articulatus*, a hardy climber which deserves to be better known. The fruit in the young stage is green and inconspicuous, but is borne freely. When ripe,

the three valves of the fruit open and become reflexed, displaying the brilliant scarlet seeds within. As the inner surface of each valve is golden yellow, the branches are most attractive with their load of gold and scarlet fruit.—*Gardening Illustrated*.

SINGLE ROSES.—Their delicate fragility, their charmingly subtle tints and the ease with which they can be grown are all reasons why they ought to be found in every garden where the Queen of Flowers holds court. The introduction of varieties like Irish Elegance, Irish Fireflame and Irish Afterglow did much to popularize them, and the worth of singles has been further enhanced since the sending out of Princess Mary, Mrs. C. E. Salmon and Isobel. These only need to be seen in bloom, surrounded in most instances with highly colored foliage, to call forth admiration and a desire to have them. Wherever roses are grown today for table decoration one can scarcely conceive an entire absence of singles, which are graceful and charming to a degree.—*The Garden*.

ROSE CAROLINE TESTOUT.—It speaks very much for a variety that, after so long a career, it even now "gets a look in" at exhibitions up and down the country. As an all-round salmon-pink Rose, both for country and suburban gardens, I do not think it has its equal. It has a wonderful constitution, flowers almost continuously from June to late October, and is good in every way. The gardener who loves roses, and, owing to difficulties of situation, etc., often fails with others, finds in this old sort one that does remarkably well and will give him many nice blossoms in the course of the year. It has a most healthy constitution and is almost entirely exempt from mildew.—*Gardening Illustrated*.

ROSE ZEPHYRINE DROUHIN.—This Rose has surpassed itself with me this year, both by its extraordinary vigor and the numbers of its silvery-pink flowers. Bushes here which were struck from cuttings a few years ago have developed as many as a dozen willow-like growths from the base during the present year, reaching a height of 8 feet and of a coppery tint. While this is so the older wood is a mass of deliciously fragrant flowers.—*Gardening Illustrated*.

POLYGONUM VACCINIFOLIUM.—This is a beautiful trailer for a shady and rather moist position, and for draping a large rock is very useful, soon making a veritable curtain of elegant foliage. If trailing over a rock with crevices, the trails will root from the joints, and it can easily be propagated in this way or by laying a stone over one of the rails, when roots will soon form; or it can be rooted easily from cuttings.—*Gardening Illustrated*.

CERASTIUM TOMENTOSUM.—This plant is an excellent one for speedily covering any dry bank, a bank, it may be, formed to hide a rough part of the garden, to screen the rubbish-heap, or perhaps a spot where it is impossible to grow anything except rough plants. The bank, covered with the *Cerastium*, remains neat for many years. All except coarse weeds are smothered, and these may be drawn out readily enough.—*Gardening Illustrated*.

Brief Horticultural Jottings

Our readers are invited to contribute pithy news items of horticultural interest to this column, which, with their cooperation, can be developed into a most interesting department.—Editor.

The Arnold Arboretum of Jamaica Plain, Mass., over which Professor C. S. Sargent is the presiding genius, has just completed fifty years of service. The original endowment fund left by James Arnold consisted of \$104,000 and one hundred twenty-five acres were used originally for the enterprise. There are now more than two hundred fifty acres in the Arboretum, six thousand species and varieties of shrubs, great numbers of which have been introduced by it to the public. The endowment fund now approaches \$1,000,000 and there is a fund for immediate development work of \$125,000. The Arboretum plans in the future to send collectors to still unexplored parts of China and other countries to study diseases and insect pests of trees, to do much hybridizing and quite a variety of other work.

Henry J. Elwes of Colesbourne, Gloucester, England, whose death was recently announced at the age of seventy-six, has been one of the greatest travellers in search of plants, horticulture has ever recorded. While he had not done as much collecting in China as Forest, Wilson, or Kingdom Ward, he had traversed more countries than these noted collectors combined. His journeys included Turkey, Asia Minor, Tibet, India (four times), Chile, Russia and Siberia (three times), Formosa, China, Japan (twice), Nepal, and Sikkim. He was a noted authority on birds as well as trees, shrubs, succulents and bulbous plants of all kinds.

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National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa. (Date not decided.)

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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LOCAL BRANCHES

NEWPORT, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.

ST. LOUIS, MO.: George H. Pring, chairman; Hugo M. Schaff, secretary.

NASSAU COUNTY, L. I.: James Duthie, Oyster Bay, chairman; John McCulloch, Oyster Bay, secretary.

BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Graig, Weymouth, secretary.

WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

PRESIDENT BARNET'S MESSAGE

Fellow Members:

1922 is now history. We as an association have accomplished a great deal and learned much. If we are to continue to make satisfactory progress, I ask at this time that you all put your shoulders to the wheel and keep up the steady growth so ably maintained in the years past.

Your president alone does not make the association and can accomplish very little without the aid and co-operation of the rank and file. This means you.

With the increase in local branches and a better dis-

semination of information success is assured. As to local branches, I believe they offer a splendid opportunity for the advancement of the association and the profession it represents. Members can get together easily at any time to discuss N. A. G. matters, and get more real knowledge at a small meeting than one would feel disposed to ask at a convention. All that is necessary is to appoint a chairman and secretary, the latter keeping in touch with the national headquarters. It is now squarely up to the localities to do their bit, and I shall be very much disappointed if we do not hear from places like Chicago, Cleveland, and Detroit this year.

In making appointments for 1923, it will be noted that some of the younger men are included which I hope will cause greater interest among the young men in the affairs of the association. The time is close at hand, if not now here, when a new order of things will take place. With all due respect to the men of today, we must look to the rising generation, both employer and employee. Where would we have been had forethought and labor not been expended in our favor.

Interesting young men in the profession we represent, is going apace since the inauguration of the co-operative training by the Massachusetts Agricultural College. Prospects are very bright and other colleges will surely follow.

Some gardeners do realize, but all must, that, due to acts of war, conditions have changed in gardening as they have in every other line of endeavor, and when a man finds that things are not as they used to be, he should not act too hastily. Many men have given up positions only to find that they have had to accept less comfortable and less remunerative ones after being out awhile. Prosperity is usually manifested on country estates, following a business boom, while retrenchment is always the order during unsettled times.

For obvious reasons which might prove profitable, I suggest that gardeners interest themselves in civic matters towards the beautification of communities, home grounds, etc. Also urge increased production of vegetables to help relieve the possible vegetable shortage of crops, due to scarcity of farm labor next season. This, of course, applies more to those localities where there are no horticultural societies which may now be actively engaged in such work. It offers a fine opportunity to any group of gardeners, no matter where located, and may incidentally help influence employers who still think a gardener a gardener only as they know him.

Our committee on Quarantine No. 37 reported progress and is optimistic as to modification in some form. While the horticultural interests in general are divided on the question, there is no doubt in my mind about the gardeners' or their employers' hopes for modification or total abolition. Therefore, let us as an association continue to co-operate with any and all organizations until the desired end is attained.

Our next convention will be held in Pittsburgh before the middle of August, when I hope to welcome a very large delegation. We are most centrally located; it has been said that Pittsburgh is only a night's ride from any place. Don't hesitate to come, even if it takes two or three nights' ride. Many no doubt are wondering what there is to be seen in and around the "Smoky City." We have several interesting things to show here which cannot be seen anywhere else in the country, if not in the world. It will at least be a change. Bring the ladies along, who will be well taken care of.

In conclusion, allow me to say a word about our official organ, the GARDENERS' CHRONICLE OF AMERICA. A paper is in a measure just what its readers make it and I am sure our worthy secretary would only be too willing to

consider any suggestions readers might offer. Since the GARDENERS' CHRONICLE is the organ and not the property of the National Association of Gardeners, I think we ought to be tolerant, and if the time does come, when the association would be prepared to take it over, then, and not till then, could the members demand just what they want, and whether it should be a weekly or monthly. For the present, I consider it a very good paper in the interest of the gardener, and worthy of a place in any employer's library where other periodicals are to be found.

With best wishes for a Prosperous New Year to one and all.

JOHN BARNET.

APPOINTMENTS OF NEW DIRECTORS

President Barnett has made the following appointments to the Board of Directors (to serve until 1926): Alex Michie, New York; George F. Stewart, Massachusetts; Theodore Wirth, Minnesota; George F. Hess, District of Columbia, all of whom are re-appointed; R. P. Brydon, Ohio; William C. Rust, Massachusetts; Charles Schroll, Wisconsin. To succeed William Gray, Rhode Island, Thomas Wilson, New York (1924); to succeed the late Thomas Hatton, Connecticut, Harold Bryant, Connecticut (1924); to succeed William H. Griffiths, Illinois, Harry Cartwright, Michigan (1924); to succeed John Huss, Connecticut, John Tonkin, Pennsylvania (1925).

NEW MEMBERS

Sustaining Members: Asa G. Candler, Jr., Atlanta, Ga. (James Barnett, gardener) and G. Gunby Jordan, Columbus, Ga. (William Atkinson, gardener).

Active Members: Charles A. Mackay, Yonkers, N. Y.; George Tull, Port Washington, L. I.; Frank Ochenden, Grosse Point, Mich.; William Sutherland, Readville, Mass.

AMONG THE GARDENERS

If any of our readers know the present address of Max Reipen, formerly of Toledo; Charles M. Lind, formerly of Stamford, Conn.; or T. V. Kerr, formerly of Valhalla, N. Y., they will confer a favor by making them known to the secretary, M. C. Ebel.

David F. Roy, for many years superintendent of the Moorings, Marion, Mass., the estate of the late Harry E. Converse, has resigned his position and has engaged in the nursery and landscape business at Wakefield, Mass.

Robert Scott, superintendent of the Carnegie estate at Lenox, Mass., has succeeded the late M. J. O'Brien as superintendent of Uplands, the estate of Mrs. W. A. M. Burden, Mt. Kisco, N. Y.

Alex Mackenzie has secured the position of superintendent of the A. V. Davis estate, Oyster Bay, L. I., succeeding John Forbes. Mr. Mackenzie held this position previous to engaging in the florist business, which he recently disposed of.

Mathew J. O'Brien, one of the oldest members of the National Association of Gardeners, and for twenty-two years superintendent of "Uplands," Mt. Kisco, N. Y., was instantly killed on December 14 by the explosion of a boiler he was inspecting in the residence of the estate. Mr. O'Brien is survived by his widow, four daughters and five sons. He was well known in horticultural circles and highly esteemed in his community.

William Reoch, for the past year outside foreman on the J. Pierpont Morgan estate at Glen Cove, L. I., secured the position of gardener on the estate of William B. White, "Hilltop," Princeton, N. J.

MEETING OF THE NASSAU CO., L. I. BRANCH

A meeting of the Nassau Co., L. I. Branch was held on Friday afternoon, December 15, at Parish Hall, Oyster Bay. Owing to inclement weather, the attendance was not as large as it was expected to be, but nevertheless it was a most enthusiastic meeting. Discussions were animated and brought forth some timely suggestions on what the branch should accomplish. Nassau County will have some recommendations to present at the Pittsburgh convention for the welfare of the national association.

James Duthie was elected chairman for the coming year; John McCulloch, secretary; John Forbes, treasurer; Alex Michie, James H. Andrews, and Alfred Reoch were appointed an executive committee with the chairman and secretary ex-officio members of it. To meet current expenses a collection among members resulted in quite a substantial sum being raised, enabling the starting of a treasury fund.

D. L. Mackintosh of New Jersey entertained those present with words of wisdom on what a gardener should and should not be.

M. C. Ebel spoke of the aims of the national association and what it is endeavoring to accomplish. James Duthie and Alex Michie offered suggestions on what the policy of the local branch should be. It was decided to hold at least six meetings of the branch during the year.

BRIEF HORTICULTURAL JOTTINGS

(Continued from page 16)

Primula obconica, while a beautiful decorative plant, poisons many people; poisoning is most probable when the party handling the plant is perspiring. There is no better cure for this and poisons from various other plants, than hot laundry soap, as hot as can be borne; usually one treatment will effect a cure.

All exhibitions of the Massachusetts Horticultural Society will be free in 1923. There will be three very important shows amongst the ten scheduled. On April 5 to 8, will come the Spring show; on September 28 to 30, a great fruit and vegetable show; and on November 2 to 5, the grand Autumn Exhibition.

The Kurume azaleas are becoming quite popular commercially and they propagate easily from seeds and cuttings, and flower when very small. Their uses would seem to be manifold. Planted out in prepared beds in Summer, their rate of growth is really surprising.

Every one does not know that the noted apple, McIntosh Red, which commands a higher price than any other apple in our Eastern markets, is not a native of the United States but of Canada, and that a monument marks the site of the original tree in Ontario.

Years ago we were startled when the Lawson carnation was sold for \$30,000. Now \$50,000 is paid for the stock of a new seedling strawberry of Kellogg's and excites but little comment. Thus have we progressed.

In time to come we shall have arboretums galore in America. We have the Arnold Arboretum now over half a century old; soon we are to have one in Washington, D. C.; the Morton Arboretum near Chicago; and one for the South and another for California are being considered. There is abundant room for all of them.

It does not seem very long since the Godfrey calla was a novelty. Now one florist in the Old Bay State grows more than half an acre of it under glass, and some of his individual dry tubers weighed as much as twenty to twenty-five ounces at planting time.

Clerodendron fallax with flowers of a brilliant scarlet color would seem to be a fine thing for Christmas. Why does not some wide awake grower make a hit with a good batch of it? Plants seed freely and seeds germinate readily and make fine flowering plants the same year.

At a recent Imperial Fruit Show in London, England, eight thousand separate packages of apples were exhibited; for twenty boxes of dessert apples, there were twenty-five entries and about as many appeared for twenty boxes of culinary apples. In 1921, British grown apples were first in both classes; in 1922 they had to be content with second place.

The 1922 Annual List of Novelties of Burnett Brothers, New York, offers a number of novelties and specialties, both in flower and vegetable seeds which will provide some interesting experiments for gardeners to secure something new in their gardens. Write for it.

The outlook for the International Spring Flower Show to be held at the Grand Central Palace, New York, March 12 to 17, is most promising. Some interesting new features are to be introduced. Five entries in the big garden classes have been received, and everything indicates that all past efforts will be surpassed. The Horticultural Society of New York, the Garden Club of America, and the New York Florists' Club, under whose auspices the show is to be conducted, are leaving nothing undone to make the 1923 show a great success.

The members of the National Association of Gardeners in Sewickley and vicinity of Pittsburgh are preparing a program for the annual convention, which will be held in Pittsburgh this year, that will be somewhat different from that of past meetings. They believe that "variety is the spice of life" and intend to furnish variety, especially for the entertainment of visiting members.

LOCAL SOCIETIES

NASSAU CO. HORT. SOCIETY

The regular monthly meeting of the above society was held on December 13. S. Wooland and J. Gailer were elected to active membership. Thomas Twigg, J. Honeyman, and J. Achler were appointed to judge exhibits, and their awards were as follows: Pot of Lorraine type begonias, first, James Kelly; twelve mixed roses, first, John Everitt. E. J. Brown read the annual report which showed that the society was in a strong financial standing. Officers elected are, James Gladstone, president; Thomas Scott, vice-president; E. J. Brown, treasurer; Edward Harris, recording secretary; Arthur Cook, corresponding secretary; William Milstead, trustee. The annual dinner will be held on January 25. Exhibits for January meeting, 12 mixed carnations, pot of Roman hyacinths, plate of mushrooms.

ARTHUR COOK, *Cor. Sec'y.*

SAINT LOUIS ASSOCIATION OF GARDENERS

The St. Louis Association of Gardeners held its December meeting at the Forest Park Greenhouses, December 7, 1922.

M. J. Benda of the Missouri Botanical Garden presented a paper on "How to Arrange and Carry Out a Flower Show." His paper was very interesting and led to considerable discussion pertaining to flower shows in general and our recent St. Louis show in particular.

This was followed by the election of officers which resulted as follows:

John Moritz, president; George H. Pring, first vice-president; Clarence McGovern, second vice-president; S. M. Beer, third vice-president; Prof. H. C. Irish, fourth vice-president; Hugo M. Schaff, secretary; Ernest Strehle, treasurer; L. P. Jensen, corresponding secretary; Wm. Schoenhofer, chairman publicity committee; Anton Lindahl, chairman membership committee; Fred Mueller, chairman information committee; L. Baumann, chairman exhibition committee; Hermann Schwarz, entomologist.

After the meeting the members were conducted through the Municipal Greenhouses, which contain a large variety of fine and well grown plants.

L. P. JENSEN, *Cor. Sec'y.*

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The annual meeting of this society was held in Greenwich, Conn., December 12, with President Tough being in the chair. Reports were presented by Secretary George Hewitt and Treasurer James Stuart. Officers for 1923 were elected as follows: President, J. Rutherford; vice-president, E. Beckitt; secretary, George Hewitt; treasurer, J. Stuart; corresponding secretary, T. J. Bulpitt; executive committee, C. Aitchinson, W. D. Robinson, J. Kierns, C. Steele. There was a fair attendance and some very good exhibits of flowers and vegetables. First prize for flowers was awarded N. D. Robinson for a vase of Columbia Roses; second prize, W. Smith, Carnations, Princess Dagmar; third prize, J. Tough, Lilium Rubrum. Vegetables: First prize and cultural certificate, W. Sealey, Big Boston lettuce; second prize, J. Linane, cauliflower. A committee was elected to make arrangements for the annual dinner of the society. Discussions followed. James Stuart made some fine suggestions for the advancement of the society and horticulture.

T. J. BULPITT, *Cor. Sec'y.*



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TARRYTOWN (N. Y.) HORT. SOC.

The Tarrytown Horticultural Society held its annual meeting December 28. Considering the demands that are made on most gardeners at this season of the year the exhibition tables were well filled with Begonias, Carnations, fruit and vegetables. Prizes were awarded to exhibitors having the greatest number of points for the year 1922; these were awarded in two sections, one of growers with and the other of growers without glass. The latter winners were as follows: 1, Ed. Kane; 2, Thos. Wilson. Of the growers with glass, Thomas A. Lee won first; Alex. Anderson, second, and Wm. Graham, third.

Our secretary's and treasurer's reports show the Tarrytown Hort. Society is a truly progressive one, both financially, numerically and otherwise. During the past year this society has done a great deal of social and welfare work, both for its members and for the community. It has also taken up the matter of the preservation of our shade trees with the result that frequent meetings are held by an advisory committee representing the society and the trustees of the town. During the past year our trees have been cared for as never before. The society has appointed a tree warden and purchased new equipment for pruning and spraying and the town is rejoicing that our society is able and willing to cooperate in the important subject. Is there anything more pleasing when passing through a town than beautiful trees? Surely this improvement will bring recognition to those that created the inspiration to make them beautiful.

After the business of the meeting was transacted President Wilson gave the chair to F. R. Pierson, who conducted the election and installation of officers, the following officers being elected: President, Thomas Wilson; vice-president, Ed. Kane; secretary, Ed. W. Neubrand; assistant secretary, Harold G. Neubrand; treasurer, John Featherstone; reporting secretary, Wm. Graham; Board of Directors, F. R. Pierson, Charles D. Millard, Isaac Requa, E. W. Neubrand, William Scott, John Featherstone, John A. Grant and William Graham; Executive Committee, William Scott, John Watts, John Thomas, William Graham, William Jamieson; Frank Honeyman; Thomas A. Lee, James McDonald, Alex. Anderson, Abel Weeks, John A. Grant and John Featherstone.

Following the installation a social hour was enjoyed and refreshments were served.

WM. GRAHAM.

Here and There

TREES AND SHRUBS FRUITING IN WINTER

The length of time that fruits and berries remain on the trees and shrubs varies very considerably from several causes. In the first place, it depends how soon the fruits reach maturity, become dead ripe and fall or are eaten by the birds. Some of the Thorns, for instance, we might liken to early and late varieties of apples. A number drop their fruits as early as October, even if not interfered with by birds; others, *Crataegus Carrièrei* and *C. cordata*, for instance, usually hang on the trees in attractive beauty well into the New Year. Locality or environment also appears to play a no inconsiderable part in the keeping qualities (so to speak) of the fruits and berries.

The birds, are, obviously, largely respon-

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sible for the length of time we are able to enjoy the many ornamental fruits in the garden. In some seasons when there is a shortage of food, possibly the ground frozen, the blackbirds and thrushes soon raid the bushes. Nor do we grudge our feathered friends their daily food. It is delightful to have them with us in the garden, and most interesting to watch them from day to day, always picking out the ripest fruits, commencing usually with the Mountain Ash (*Pyrus Aucuparia*). Fruits which ripen late they leave until last. Timid by nature, the birds seldom venture to feed on the berries growing on trees and shrubs in much-frequented places. This is why the masses of fruits remain so long conspicuously beautiful growing against suburban houses, while away in the shrubbery borders the bushes are already alive with blackbirds and thrushes feasting on the fruits. In some seasons our Holly bushes are almost cleared of berries if we get a sharp spell of frost before Christmas.

Again, the birds are only copying human beings in their partiality for certain fruits. The ground may be covered beneath a tree with plenty of dead-ripe fruits, but another kind on a neighbouring tree is evidently more tasty, judging by the efforts of the birds swinging at the ends of the twigs.

Three *Crataegus* stand out from all the rest as late-fruiting kinds, the fact that they are correspondingly late in flowering giving them an additional value. *Crataegus cordata* (the Washington Thorn) carries its clusters of rather small orange scarlet berries to Christmas, or later if untouched by birds. *C. Carrièrei* is one of the handsomest of the family in flower and fruit. At present the bronze, crimson and gold foliage is conspicuous in the autumn sun with large fruits which often hang on the trees until February or March. *C. stipulosa* (*C. mexicana* of the Botanical Register) retains the fruits and much of the foliage until late in the year and sometimes into January. The fruits are yellowish green. It is worthy of note that, though a native of Mexico, it is hardy in this country.

Cotoneasters are represented by two species in particular which are conspicuous at Christmastide and after, and to which birds do not appear partial. *C. rotundifolia* is a semi-evergreen often carrying its foliage and rich scarlet-red fruits until March. It forms a spreading bush 6 feet to 8 feet or more in height. Even better known is *C. frigidula*, remarkable alike for its wealth of red berries and the length of time they retain their beauty. Usually seen as a large wide-spreading bush, this Cotoneaster can be trained into a tree with a good thick-set trunk. The fruits often provide a remarkable contrast to the new soft green foliage in spring.

Several Barberries deserve attention as fruiting bushes in midwinter. Two of the most constant in the production of berries are Barberries *subcaulialata* and *B. Stapfiana*. Both are Chinese species, forming wide-spreading bushes, some 3 feet or more in height with gracefully arching branches laden with carmine-red fruits. The berries of *B. subcaulialata* are brighter in color and have less "bloom" on them than those of *B. Stapfiana*.

A shrub or small tree which the birds appear to leave severely alone is the Sea Buckthorn (*Hippophaë rhamnoides*). It has clusters of orange berries lasting in beauty from autumn until February or March. Non-success with this valuable seaside or waterside plant is usually traceable to the fact that only one sex is grown. Male and female flowers are borne on separate trees, and both must be grown fairly close together to obtain fruits.



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Straightway after reading it, I sent for your catalog, and looking through it slowly, leaf by leaf, lingered at the one on Page 27. Turning to the window, I looked out and saw it in my mind's eye, just as it would look.

After which you know what happened.

Looking up from my writing this, the yard is piled with snow drifts and the wind is howling like a hungry wolf, but it is perpetual summer in the bloom filled greenhouses. They are filled with flowers and I am filled with the joy of their possession."

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Pernettya mucronata is a spreading evergreen shrub two to four feet high, giving a wealth of brilliant fruits the size of peas and varying in color from waxy white to blackish purple and including rose, lilac and mauve. *Pernettyas* are readily raised from seeds, but as only a portion of the seedlings produce really shown fruits, to reproduce these true increase should be by layering or by cuttings. To improve the type, however, recourse must be obviously be had to raising and selecting seedlings. The *Pernettyas* usually retain the fruits until the early months of the new year.

The Snowberry (*Symphoricarpos racemosus*) is too often a neglected shrub. Grown in deeply trenched and well manured ground, it produces quantities of large white fruits weighing down the branches. The Siberian Crab (*Pyrus baccata*), the cultivated garden form, not the wild type, is the last of the Crabs to drop the cherry-like red fruits, often after Christmas.

Last, but far from least, though it is a British wild climber of the hedgerows, mention must be made of the Traveller's Joy or Old Man's Beard (*Clematis Vitalba*), decking all and sundry over which it can ramble with its abundant silky fruits.—*The Garden*.

PRESERVATION OF NATIVE NEW ENGLAND PLANTS

A Society for the Preservation of Native New England Plants has been formed under the auspices of the Garden Club of America and the Massachusetts Horticultural Society.

Its object is to encourage and educate the people of New England to protect native plants and wild flowers from destruction, to cut them only with care and discrimination, leaving the rarer specimens to multiply themselves, and to spread a knowledge of their habits and cultural requirements among the community at large.

This Society plans to provide free lectures, hold exhibitions, plant wild flower sanctuaries, and to spread knowledge and love of wild plants, believing that once the people have learned about them they will become their guardians and stop their rapid extermination.

At present the native Laurel is in great danger, being used in immense quantities in decorations at all seasons of the year, especially at Christmas time. For example, one yard of "Laurel rope" contains twenty years' growth of a large plant. In New



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England, motorists have already destroyed great quantities of this, one of the most beautiful shrubs in America.

Many wild flowers, which twenty years ago were common, are now seldom found, and unless the people are willing to protect rare and easily exterminated species, they will soon be lost to New England. For example, the Magnolia or Sweet Bay has from overpicking practically disappeared from the swamp in the town of Essex County, Massachusetts, to which it gave its name and which was the only place in New England where this fragrant flower grew naturally.

The annual membership is placed at \$1.00 with Junior members (under eighteen years) no dues, except to pay ten cents for a button of the society. Sustaining members pay \$5.00 or more.

Further information may be had from Mrs. S. V. R. Crosby, care Massachusetts Horticultural Society, 300 Massachusetts Avenue, Boston, 17, Massachusetts.—*Hort. Society of N. Y. Bulletin.*

WILD FLOWER SANCTUARIES

The action of Vermont in putting certain groups of wild flowers and ferns under protection similar to that given to wild animals by game laws has the approval of all who are interested in the preservation of American plant life. By the Green Mountain State enactment it is made unlawful for any person in any one year to take more than a single uprooted specimen, or more than two cuttings, of any of thirty or forty named plants, and specimens may be taken for scientific purposes only. The penalty for violation of the law is a fine of \$10. The restriction does not apply to owners of land on which the plants grow.

Just as there are bird sanctuaries in certain States and in Canada, Vermont thus becomes a wild plant sanctuary. It is a distinction other States might with advantage secure for themselves. The devastation of wild plant life in New York, New Jersey, Pennsylvania and practically all of New England which has been going on in recent years means extermination of many beautiful wild flowers.

The trailing arbutus presents a case in point. Ten years ago this daintiest and most fragrant of early Spring flowers could be found in abundance within a comparatively short distance of New York city. It is now fast becoming a rarity. The automobile and the thoughtless automobilist are pursuing it even into the remote recesses where it has hitherto blossomed in safety.

What with forest fires and quarrying operations, the unescapable forces of destruction are numerous enough to wipe out the last vestiges of many beautiful wild plants.—*N. Y. Herald.*

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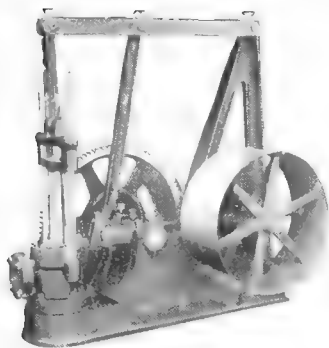
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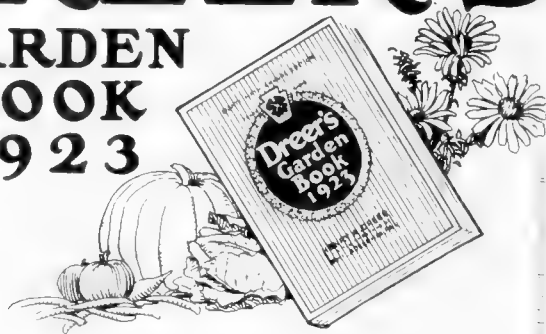
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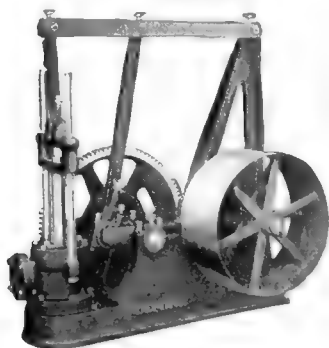
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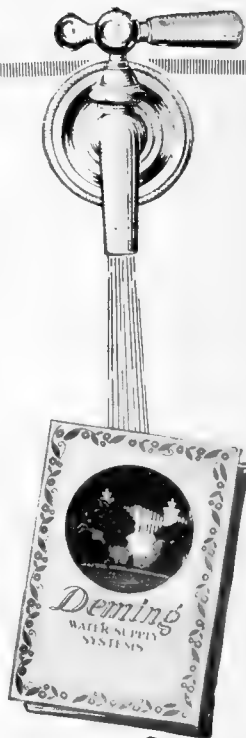
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Media, Penn., November 25, 1922.

My dear Mr. Baldwin:

All my thanks I have been trying to find time to tell you about my seedling flowers from your packet of two last spring. I have a very large white flower, as handsome to my eye as Louise Gandy Sherwood; another, also very large, in shades of red apricot, quite all the usual in form and coloring.

Still another two in fact which I have had to refuse offers for; one bright pinkish with blue tips, and another decorative, rose colored, cream center, compact. They are to be well worth naming and propagating for stock. Some of the other colors are equally interesting to me, though not quite as large. I have been so aware of late that change of climate is one of the greatest factors in plant selection and for that reason have been an enthusiastic advocate of the practice of transplanting plants and by eastern dahlia growers. This coupled with the superior quality of your seedling material and long California growing season which makes our plants to put into them the utmost measure of vitality and bloom potentiality, has resulted in such wonderful results from your seeds, when grown in my garden. Best regards, etc.

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Most cordially your

(Signed) CHARLTON B. BOLLES.

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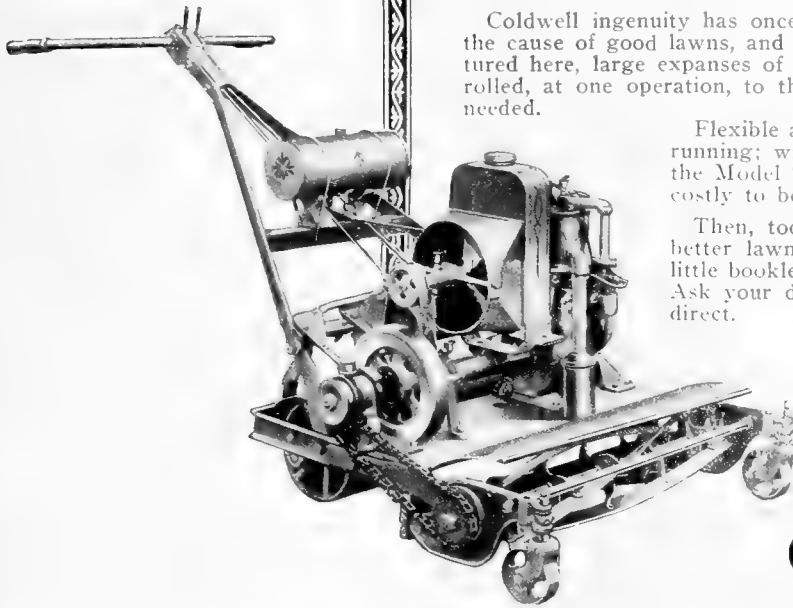
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Seedsman

92 CHAMBERS STREET, NEW YORK

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30-32 Barclay St.
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

FEBRUARY, 1923

No. 2

Things and Thoughts of the Garden

WILLIAM N. CRAIG

WE have been accustomed for a number of years to consider China as the plant collector's paradise, and that it is such no one will question, as the many fine things introduced from there in recent years by Reginald Farer, William Purdon, F. Kingdon Ward, and Ernest H. Wilson will testify. After listening, however, to an address in Boston by Adolph Müller of Norristown, Pa., on a recent trip to the great glacier section of Alaska, it is very evident that we have within our own possessions many wonderful floral treasures, growing there in great numbers which equal anything that China has given to us. The absence of Ericas in a state of nature in the United States has often been remarked, but in Alaska, Mr. Müller tells us, there are numerous varieties growing in profusion. There are also Callunas (Scotch heathers), silenes, Epilobiums, gentianas, saxifragas, lupines, genistas, pines, spruces, willows, and many other plants, most of them entirely unknown in this country.

* * *

Mr. Müller brought an interesting and lovely little specimen of *Lonicera nitida* with him; this should make a fine rock plant. He also gathered some two thousand specimens which he will distribute to various societies for their herbariums. He considers this little known north-land a country of such promise for plant collectors that he hopes the government will organize an expedition to explore its as yet almost unknown horticultural treasures. Incidentally Mr. Müller states that in Alaska one has a most voracious appetite, that in August frosts occurred nightly, and that on August 26 and 27 his tent was buried in three feet of snow, from which it will be assumed that ordinary Summer camping outfits will hardly suffice there.

* * *

Now that rock gardens are becoming increasingly popular, surely we should be able to obtain many useful plants, in addition to herbs, from Alaska which might succeed in such gardens, where in addition to willows, pines, and spruces, there are currants, gooseberries, huckleberries, and other interesting plants. Now that the powers that be make it more and more difficult to bring new plants in from abroad, surely an earnest effort should be made to get what we can in the way of new and useful plant material from our own possessions.

* * *

Not many years ago, women in horticulture were looked upon as jokes, and there are still not a few men who put

them into that category. Women gardeners and florists were increasing in number before the war, and we all know that during that colossal struggle, they performed yeoman service horticulturally. But for their service many private estates as well as commercial plants could not have kept going. The passing of the war has somewhat changed conditions, and both here and abroad, the number of women actively engaged in horticulture has undoubtedly decreased. However, it is cheering to know that a good many quite successful garden advisers, landscape gardeners, florists, fruit growers, gardeners, and retail floral store operators are women. This is as it should be: there certainly could be no more interesting or finer calling for them. Women, we know, have their physical limitations, but when it comes to color arrangements in the garden, creating a simple and pleasing restful effect, or using flowers to the best advantage indoors, they can usually give points to mere man.

* * *

Both in Pennsylvania and Massachusetts we are fortunate in having schools of landscape architecture for women, and each of these institutions has turned out students who are doing at least as well as men. It may be charged that women's ideas are impractical, but in my experience, they are no more so than men's. The average landscape architect should be fundamentally an artist, his or her profession is really architectural rather than horticultural, and it is on this account that so many of them fail dismally, when they essay to use plant material of which they have a rather imperfect knowledge. Many of them plan architecturally very well, but they would in many cases have been well advised had they acquired the services of a first class professional gardener or nurseryman to overlook their planting. If this were done, estate owners would not be constantly pulling to pieces and changing the work of landscape architects.

* * *

But to refer once more to women landscape architects and their training schools. At Lowthorpe, Groton, Massachusetts, is one of these schools, charmingly located some thirty-six miles from Boston. Here are to be found well planted rock gardens, a rose garden, iris garden, a sunken garden, annual garden, and perennial nursery; here also are fruit trees in quantity, vegetables, and greenhouse plants. This school has a most efficient corps of instructors and has turned out some very good material. It is this season trying the experiment of a special course for amateurs, covering all types of gardening, roses, iris, peonies,

soil preparation, matching, propagation, seed sowing, etc. The course will run from April 3 to May 17, and should appeal to many amateurs. The Lowthorpe School deserves commendation for this earnest effort to interest the increasing army of amateurs, and I trust that it will meet with every success.

* * *

It is not usually the large, expensively constructed flower gardens which appeal to us the most. Too often these are correctly stigmatized by the famous art critic, John Ruskin, as "ugly things." How many of these gardens are really interesting and satisfying? Those which have given me the deepest pleasure, and would have satisfied Shakespeare himself, had no landscape architect to design them, but are the work of the owner assisted and encouraged by his or her gardener. In some cases, no gardener was even employed, but the results were simply delightful. In the last ten years I have visited a considerable number of notable private estates, but the fingers on one hand would more than count all that were appealing and pleasurable, and which made me feel that I would love to linger there.

* * *

Of course, our tastes are quite dissimilar, else we would not have so many varied types of gardening, all of which undoubtedly give pleasure to some. Blue gardens, pink gardens, yellow gardens, annual gardens, bulb gardens, hardy perennial gardens, Italian gardens (Americanized), French gardens, English gardens, all have their adherents. Most of them are formal, usually because they fit with a certain scheme which necessitates their being so. The informal or natural garden does not appeal to everyone, but after gazing at a wide assortment of formal plantings whose dead flowers are removed, plants neatly staked, bad colors religiously culled, and weeds allowed no foothold, what an infinite relief it is to see something informal, where there are no large masses of color, where one sweeping glance can not take in the whole garden, and where new objects of interest and beauty present themselves at every turn! Yet everyone does not see things in this light, and what we revolt at will please others; perhaps it is best that this is so. Our ideas are probably circumscribed, and as we advance in years, we may be over critical and more difficult to please. We cannot agree with Louise Shelton, who in the preface to her book, remarks that the person who has read the book has little more to learn. When we reach that stage, it is time we quit this mortal sphere.

* * *

The debarring of new, rare, and desirable plant material from abroad makes it necessary for us to utilize more of the material we have on hand. The *Malus*, or ornamental crab apple family, is one not sufficiently planted and appreciated. Due to the use of improper stocks, some varieties of these beautiful flowering trees are not lasting as they should. The beautiful Bechtel's double flowering crab apple is a notable example of how a handsome tree can be killed in a few years by using a too vigorous or too feeble stock. The lovely *malus*, *Arnoldiana*, is another example. Of the better known crab apples, *M. floribunda* is probably the most universally popular; like many of the varieties it is also very attractive when in fruit. A few other very beautiful ornamental *Maluses* are *Parkmanii*, synonymous with *Halleana*, and a form of *floribunda* with large semi-double rose colored flowers. It is commonly called the Parkman crab, in honor of Francis Parkman of Boston. Another *floribunda* form is *atro-sanguinea* with very dark flowers. The Chinese *spectabilis* with lovely semi-double, pink flowers makes a handsome tree as does *Scheideckeri*. There are quite a

number of excellent ornamental crab apples, and it is pleasing to know that wide-awake nurserymen are taking these up more. They are not adapted for a mixed shrubbery, but make beautiful lawn specimens and should always be planted where they can show their full individuality. For anyone desirous of planting but one or two sorts, I would recommend *M. loensis* Bechtel, the double form of our prairie crab apple; its large double, pink flowers are as sweet as any tea rose, and it is the latest of the forms to flower. *M. floribunda*, a wide spreading, rather low growing variety; *M. Scheideckeri* of pyramidal habit with large semi-double flowers; *M. Arnoldiana*, a form of *Scheideckeri* originated at the Arnold Arboretum, of bushy habit and carrying much larger flowers, and *M. Parkmanii*.

* * *

I have read with interest the report of the trials of new dahlias at Storrs, Conn., for the last season. Forty-eight growers sent in one hundred thirty-six new varieties against one hundred twenty-four in 1921, one hundred-sixty in 1920, and forty-five in 1919. This makes a total of four hundred sixty-five dahlias in four years and does not by any means cover the entire country. Dahlias are very popular flowers with a large and constantly increasing number of growers, but the sending out of such a host of novelties is utterly bewildering and senseless. What amateurs want is a "boiled down" list of good varieties, say ten peony-flowered, ten decorative, ten cactus, five singles, five shows, five pompons, and so on. Those issuing catalogues, who will send out such a list deserve support and commendation. There is today too much aping after size, the mammoth flowers of today are not decorative and cannot hold a candle with singles and cactus when it comes to real artistic arrangement. We want very much a race of dahlias of moderate height which will throw flowers well above the foliage and prove free blooming. Why not offer inducements to those who can give us fragrant dahlias? The American Rose Society allows but five points out of one hundred for fragrance, the American Carnation Society the same. Is it not time we took forethought and encouraged more the addition of fragrance? Even the American Peony Society allows ten points for fragrance, and the time is not far distant when we shall have scented gladioli.

* * *

Free seeds have been killed, at least temporarily. The cutting off of this Congressional graft has greatly agitated some of our national legislators and they will no doubt make earnest efforts to try to bring back the old order of things another year. We are threatened with the exclusion of all bulbs at no distant date, probably we can produce some varieties here, others we cannot. In this connection it is interesting to note that the Department of Agriculture has for some years had a bulb farm in Bollingham, Washington, and has been experimenting with tulip production on a moderately large scale. They have recently issued a most interesting and valuable pamphlet on tulip bulb production in America, and it would well repay all bulb growers to secure and study this bulletin. The author, David Griffiths, has done some excellent work with lilies and other bulbs at Arlington. Desiring to try out some of the government produced bulbs in comparison with imported Dutch stock, a letter was sent to the Department of Agriculture, asking if it would sell some for this purpose. The reply was most interesting and illuminating. "Boiled down," it simply stated that all surplus bulbs with two small exceptions had gone out in the regular Congressional distributions! But, that perhaps, at some future time, some might be for disposal.

(Continued on page 52)

Hardy Roses For the Garden

ALEX. CUMMINGS, JR.

THE first important detail in the outside culture of the rose begins in the location of the rose garden.

Choose, if possible, a location that is somewhat sheltered from sweeping winds, but not too enclosed to prevent a free atmospheric circulation. A warm, sunny position that will receive the benefit of the morning sun and is sheltered somewhat during the afternoon is the ideal location, yet the rose prefers the full sweep of the elements to the shadows of overhanging trees or nearby buildings.

The rose is not as fastidious in its preference of soils as we are frequently informed. It will give excellent results in any good garden soil that is well drained; that is, soil that is free from standing water. Making a rose bed in a wet situation, no matter how well drained the bed in itself is, can never be a complete success, for no amount of drainage material can amount to little more, in effect, than a catch basin or receptacle for the surrounding water to drain into. The land surrounding the bed must be equally well drained.

In preparing the bed, the soil should be excavated to a depth of eighteen inches or two feet, and refilled with soil, turf, and barn-yard manure in equal quantities, with the addition of a generous sprinkling of coarse bone meal.

The success of the rose bed depends much upon the quality of the plants, to begin with. It is generally conceded that the budded, two-year-old rose is the best for Eastern America. Some more experienced growers prefer to plant dormant stock, while others prefer the established pot plants that are obtained in growth for May planting. Either type is undoubtedly good, the advantage in purchasing plants that are started in pots being in the fact that there is less possibility of loss in planting. Again, it is not always possible to get the ground in shape before it is too late to successfully plant dormant stock in the limited time available. It is important that the soil be in good working condition, not dry, and yet not so wet as to be disagreeable to work with. The plants, if dormant, should be set about two inches below the part where the root and the top unite, or a little lower than previously planted. If the plants are from pots, the ball of earth surrounding the roots should be set two or three inches below the surface level. Part of the soil, only, should be replaced, well firmed and the plant thoroughly watered. When the water is absorbed the remaining soil can be filled in, firmed, and the bed raked level.

The subsequent cultivation and care required merely provides a means of relaxation to the rosarian. The soil should be cultivated lightly at frequent intervals and the plants watered when necessary. A thorough watering is far more beneficial than frequent sprinklings. An occasional application of liquid manure is decidedly beneficial, particularly if applied in a weak solution once or twice a week until the buds commence to show color, when stimulants of any description should be withheld. In early July, a mulch of any strawy material can be applied to conserve moisture and protect the roots during the heat of mid-Summer.

The majority of our garden roses will come through the average Winter without much protection, if their location is somewhat sheltered, but they are all benefited by a generous Winter covering. A heavy coat of well-dried leaves will afford ample protection to the more hardy roses, but the Hybrid Tea, the Tea, and other less hardy types require a more careful protection. We find soil to

be the best material for protecting tender roses. Where the roses are not too closely planted, the soil immediately surrounding each plant can be drawn up on it to a height of nine to twelve inches. Where the plants are closely placed, the soil should be drawn in from the compost heap or garden. The object in covering roses is not to keep the frost out so much as to keep it in the ground; winter killing is caused more by changeable weather, the alternate freezing and thawing doing more damage than any amount of severe freezing. When the protecting soil is thoroughly frozen, a covering of leaves or light litter will keep the plants in good condition until the Spring.

The majority of climbing roses are hardy under ordinary conditions, but there are occasions when some protection is desirable. In this event, the growths must be removed from their support and bent not too abruptly to the ground and covered, as far as possible, with soil. Heavy caned plants cannot be altogether protected in this way, without the risk of fracturing the more rigid growths, but they can be bent far enough to permit covering at least two-thirds of the younger wood, and this, of course, is where the protection is required with rye straw and this capped with paper heavy enough to shed the rain.

The additional trouble involved in affording Winter protection is well repaid in the plump and healthy condition of the wood when uncovered.

The most important detail in hardy rose culture—that of pruning—is one that is apt to puzzle the grower not thoroughly familiar with the various types and their habits. The quality and quantity of flowers depend to a great extent on this operation and to the grower not sure of his subject, the best advice, perhaps, would be to let it remain unpruned.

Climbing roses require very little pruning, the removal of the old battle-scarred and dead wood, or any that may appear superfluous, and trimming back the ends of any remaining wood that seems out of balance. This applies of all Ramblers, Wichurianas, Pillar Roses and the hybrid climbing varieties, such as Paul's, Carmine Pillar, Climbing Frau K. Druschki, and roses of that type.

The Hybrid Perpetual or Remontant roses with a few heavy growing exceptions, are benefited by the removal of all weak or dead wood, and pruning the remaining growths back to from three to six eyes, the upper remaining bud should point outwards whenever possible, the purpose of this being to keep the new growth away from the center of the plant.

The pruner's judgment should always be governed by the growth of the plant. If it is heavy and erect in habit, as we find it in the varieties Clio, Margaret Dickson or Gloire Lyonnaise, the pruning should be less severe. Less vigorous kinds of a more branchy lateral growth, Louis Van Houtte, Alfred Colombo, or Fisher Holmes, for instance, should be cut back hard, one or two eyes being sufficient in the lighter wood and not more than four in the heavier wood.

Hybrid Tea and Tea roses require approximately the same treatment. The strong growing kinds can be left a trifle longer, while the weak varieties should be cut practically to the ground to give the best results.

The Dwarf Polyantha and Baby Ramblers merely require a thinning out of the weak or congested center growths, slightly heading the remaining wood back.

What is a Flower?

WILLARD N. CLUTE

TO ask "What is a flower?" seems at first glance an extremely foolish question. Anybody with average intelligence ought to know what a flower is. If by the term we mean the creations offered by the florist it is probable that few would go astray in the naming, but if we get down to exact science, and ask what the botanist means by "flower" the matter is invested with more difficulty.

Are "Calla lilies" flowers? No, they are bunches of flowers. Are dandelions flowers? No, they might be regarded by the botanist as a bouquet but never as single flowers. How about the sunflowers? The case is still worse, for the sunflower is really a bouquet of two kinds of flowers. Are pussy-willows flowers? No, they are only half flowers, while the "flowers" of the flowering dogwood are a bunch of flowers plus, and so are those of the poinsettia. The "flowers" of the painted cup are colored leaves and so it goes.

Everybody knows, of course, that the seaweeds and other algæ, the fungi, lichens, mosses, liverworts, ferns and various other low forms of life have no flowers at all, otherwise there would be no distinction in calling one branch of vegetation "flowering plants." But a good many true flowering plants might be put in this flowerless list by a student unfamiliar with their peculiarities. For instance, let us take the case of *Wolffia*. When full grown the plant is about the size of a period on this page. One has to use a microscope to get much of an idea of it, and yet it is a member of the flowering plant group in good and regular standing. It is true that its flowers consist of a single stamen and carpel each, but these suffice for the plant's needs in this line for the two organs mentioned originate the pollen grains and ovules which in turn produce the sperms and eggs which unite to form new plants. This, indeed, is all that any flower is for, and though other plants may have additional parts, just as rich men may have more servants than others, these extra parts are seen to be superfluous for the plants can get along very well without them.

Wolffia is our smallest American flowering plant, but there are other and larger species with flowers nearly as simple. In the grasses, sedges, cat-tails, and the great majority of our forest trees, the blossoms are similar in structure, though there are likely to be more of each kind of organ. A great many people are surprised to know that such plants bear flowers at all. The blossoms of the poplars, willows, birches and some others are rather more conspicuous and therefore more familiar sights, but it is seldom that the non-botanist sees any connection between these and the fruiting of our forest trees. The idea held by many seems to be that acorns, pine cones, and hickory nuts just happen.

One peculiarity of these simple flowers is that the stamens and carpels are frequently borne on different plants. This is true of the willows and poplars where it takes two separate trees to produce a single ripe seed. Such species are spoken of as dioecious, and the clusters of stamens and carpels are known as staminate and carpellate flowers respectively. The last mentioned may also be called pistillate flowers, but carpellate is a better term.

In pines, oaks, walnuts, chestnuts and numerous others, the staminate and carpellate flowers are borne on the same plant but in different places. This is well seen in the common cat-tail where the stamens are above the carpels on the same stalk. After producing the pollen the

stamens fall off but the carpels remain and ripen up into the cylindrical brown mass of fruits with which we are all familiar. Maize or corn is another good example. Here the tassel consists entirely of staminate flowers and the ear of carpellate ones. When young, an ear of corn is really a bunch of flowers! Or, perhaps it might be better to say a bunch of half-flowers since complete flowers are regarded as consisting of both stamens and carpels. Again, a pine-cone is a cluster of ripened carpels. In Spring, however, the pine tree bears a second set of cylindrical, cone-like objects which ultimately open and shed clouds of pollen on the air and thus prove themselves to be staminate flowers. When staminate and carpellate flowers are borne on different parts of a single plant, the species is said to be monoecious. In addition to the arrangements thus far mentioned, various other plants may have three kinds of flowers, staminate, carpellate and a mixture of both stamens and carpels. In no case, however, is there a species of flowering plant that lacks either stamens or carpels, though as we have seen, certain individuals may lack one or the other.

In the older books the stamens and carpels are called the essential organs because both are absolutely necessary to the production of seeds. Probably a better name for these organs is sporophyll since it is now known that the pollen grains borne by the stamens and the ovules borne by the carpels, are spores. All the flowering plants must possess these parts no matter how many accessories they may have in the way of petals, sepals, coronas, nectaries, bracts, spurs, and disks. These extra parts may help the stamens and carpels in carrying on their work, but they are not necessary.

One has to go back to the ferns to understand how we are warranted in calling the so-called essential organs, sporophylls. In the ferns, it is well known that some of the leaves bear small dustlike objects which are known as spores and which reproduce the plant. Such leaves are called sporophylls to distinguish them from the ordinary vegetative or foliage leaves. In other fernworts, though the sporophylls are alike, the spores do not produce plants of the same sex when they germinate. The best nourished are likely to produce eggs and the less vigorous bear sperms. In still other members of this group there is a difference in the size of the sporophylls and a corresponding difference in the spores. The small spores produced by the small sporophylls give rise to plants bearing sperms while the larger sporophylls of course ultimately produce eggs. Thus when we come to true flowers we see the same two forms of sporophylls, a little more refined, a little more distinct, and a little more efficient, but still sporophylls. They are arranged on the flowering stem, as leaves are arranged in rosettes, and may, on occasion, turn to leaves. Indeed, it is quite likely that we have the whole matter reversed and that leaves have been derived from sporophylls or perhaps both sporophylls and leaves have originated from some more primitive form. The botanist is fond of saying that a flower is a branch beset with sporophylls, and this comes pretty near to answering the requirements. In accordance with this, however, it would seem as if some of the fernworts might qualify as flowering plants. None of these latter plants, however, bear seeds, and seeds are the really distinguishing features of that highest division of the vegetable kingdom, which we commonly call flowering plants.

My Dream Garden

FLORUM AMATOR

HAPPY is he who dreams about ideal possessions and environments, those which make life beautiful and lovely, and yet is not made miserable by the obvious scantiness of his actual possessions and the homeliness of his surroundings. Such as he may dream of a spacious garden, set amid beautiful surroundings and still not be unhappy in cultivating his own little garden plot.

My dream garden occupies about one acre on a country place. The ground slopes a little toward the south, is well drained and naturally fertile. In shape my dream garden is square. A trench three feet wide and four feet deep has been dug along the boundary lines and has been filled with rough field stone, which had been well grouted as they were placed in the trench. On this foundation a wall three feet wide and six feet high is built of rough field stone. In the center of the wall from the bottom to the top the stones are held together to a width of two feet with strong cement, and care is taken that the inside ends of the stones, which form the inner and outer sides of the wall extend into this cement and are held firmly by it, but the outer ends of these same stones are not filled in between with cement. The outer and inner surfaces of the wall, therefore, are irregular and rough with pockets here and there and shelves, for the stones forming the outer sides of the wall are given a slight upward tilt instead of being laid horizontally. The top of the wall is jagged and so holds more tightly the eight inches of strong cement with which it is finished. There is a heavy gate of non-rust metal in the center of each wall. These gates are five feet wide so that a horse and cart may enter as well as a person. In the top of the wall on each side of each gate is an urn-shaped hole about twenty inches wide and deep, thickly cemented on the sides but not on the bottom. Such is the location and the confines of our dream garden.

In the midst of this garden is a large, square open space, in the center of which there is a well that gives an unfailing supply of water. This is surrounded by a high stone curb. Over the curb there is a frame of rustless metal which supports a wheel over which passes a chain. To this chain are attached two buckets, and all are of the same metal as the frame. To the north, out of the shadow of the well, is a sun dial; to the south, a piece of appropriate garden statuary; to the east a large concrete fish basin; and to the west, a lily pond of concrete and of an artistic design.

The garden is piped with rustless iron pipes, laid below the frost line, so fully that any point in the garden is watered with the use of a twenty-five-foot hose attached to one of the numerous hydrants. Not far outside the northern wall of the garden is a windmill whose high tower of field stone is laid up in strong cement and surrounds a well. From this well a constant supply of water is pumped up into a large, stone encased, rustless metal tank on the top of the tower. The sails of the windmill are of non-corroding metal. The tank is connected with the garden pipes.

At different appropriate places in the garden are chairs, settees, benches and tables of concrete of artistic design, and pieces of beautiful statuary, but only such as are appropriate to a garden.

About two feet away from the walls a path, five feet wide, on each side of the garden. This and all the other garden paths are of gravel. All the garden beds are

dug and well fertilized to the depth of three feet or more. These beds are of rectangular shape.

Fifteen feet south of the northernmost path of the garden and extending to its most eastern and western paths is a pergola, nine feet high, whose posts and cross beams overhead are of reinforced concrete, and beneath which there are concrete benches, chairs and tables. All these are the mere physical features of my dream garden.

The life of my dream garden is in the many kinds of plants, growing not only within it, but on the sides and tops of its confines as well. On each side of each gate and corner, extending from the gates and corners about fifty feet on the outside of the walls, close-clinging hardy vines, placed in an aspect most desirable to each kind, are growing; namely, the several species and varieties of Ampelopsis, Hedera, Euonymus, and Schizophragma. Inside the gates on each hand for about twenty-five feet the same vines are growing on the wall.

At the foot of the walls, both inside and out, are growing the larger hardy ferns in positions favorable to each; the Adiantums, the Aspleniums, the Dryopteris, the Osmundas, the Dennstaedtia, the Polystichums, and others. In front and among these ferns are terrestrial orchids, such as Cypripediums, Habenarias, Orchis, Liparis, Calopogons, Spiranthes, Corallorhizas, and Pogonias.

In the pockets among the stones in the outer and inner surfaces of the wall and on the little upward tilting shelves, in suitable kinds of soil which have been placed in and on them, except where there are clinging vines, small rock-loving ferns and plants and mosses are growing thickly. There are a great many kinds and species and varieties of these plants growing in the wall pockets and shelves, and they form one of the most interesting and unique features of my dream garden. In the urns on top of the walls are growing Pinus Mughus, and such other dwarf evergreens as are suitable for these locations.

At the foot of each post of the pergola are hardy vines which run up over the post and the overhead structures; Wistarias, Begonias, Akebias, Clematis, Lonicera, Aristolochia.

North of the pergola there is a path five feet wide. Between this path and the most northern part of the garden, extending from the most eastern to the most western path, is a bed eight feet wide containing choice hybrid Rhododendrons. They are protected from the Winter's drying winds by the north garden wall, and from the burning and drying sun of both Summer and Winter, by the vine-covered pergola on the south.

About fifteen feet north of the southernmost path of the garden there are two rows of reinforced concrete posts, five feet apart each way and extending from the easternmost to the westernmost paths. South of these posts, which are ten feet high, is a path five feet wide, also extending to the most eastern and most western paths of the garden. On the posts are growing the various climbing and rambler roses.

Between the path south of the roses and the southernmost path of the garden is another bed, eight feet wide, filled with Rhododendrons. The posts, which are staggered, and the rose canes on them, give the Rhododendrons considerable protection from the north winds, and the southern garden wall helps to shield them from the sun.

There are beds of tea, of hybrid tea, of hybrid perpetual, and of other classes of roses in the sunniest loca-

tions of the garden. Various kinds of flowering shrubs, all kept pruned low, are well represented and give a succession of bloom from March to November. Dwarf ornamental flowering trees at points of vantage play a prominent part in my dream garden. These trees are pruned so that they grow low and are not massed, but are set along the paths in the ends of beds of such plants as are not injured by a little shade, or are positively benefited by it. Prominent among the flowering shrubs are hardy Azaleas, Buddleias, Clethra, Colutea, Deutzias, Forsythia, Hydrangeas, Hypericums, Kerrias, Lespedeza, Magnolia, Philadelphus, Spiræas, Styrax, Syringa, Tamarix, Weigelas, and Viburnums. Among the smaller ornamental flowering trees are chiefly to be found Cornus, Halesia, Kœlreuteria, Oxydendrum, and Prunus.

There are several beds of berried and bright barked shrubs, and such trees as give late Autumn and Winter effects. There is a moderate number only of well pruned dwarf evergreens here and there.

The lily pond is well stocked with hardy *Nymphæas* and the fish pond with several kinds of fish.

The hardy herbaceous perennial flowering plants and the hardy lilies and other bulbous plants, and the hardy Irises are growing in numbers in my dream garden, some in separate beds and some in the edges or among the shrubbery. Indeed, all the hardy lilies, and other bulbous plants, and most of the hardy Irises, so many that we can hardly name them, are growing in this garden. Among the hardy herbaceous perennials are the Peonies, the Moutan or tree class is given unusual attention, as well as the albiflora or Chinese, and the officinalis varieties are not neglected. From earliest Spring until late Autumn some one or more of the perennials are in bloom: Alyssum, Anchusas, Anemones, Anthemis, Asters, Astilbes, Boltornias, Campanulas, Chrysanthemums in sheltered locations, Coreopsis, Delphiniums, Dianthus, Dicentras, Digitalis, Doronicums, Eremurus, Eupatorium, Gaillardias, Gypsophila, Helianthus, Hemerocallis, Hibiscus, Hosta, Convallaria, Iberis, Liatris, Lobelia, Lupinus, Lychnis, Malva, Monarda, Phlox, Platycodon, Primula, Pyrethrum, Ramunculus, Tiarella, Veronica, Viola, and Yucca.

These flowering trees and shrubs, rose bushes, pond lilies, hardy lilies, and other hardy bulbs, and the hardy herbaceous perennials in my dream garden afford me a quantity of cut flowers throughout the open season of the year.

The pretty, but short-lived annuals also find places to grow between the hardy plants here and there, and when the perennials are not in bloom, the beds and borders are still kept bright by the blooms of the annuals, Asters, Snapdragons, Verbenas, Calendulas, Marigolds, Mignonette, Stocks, and Poppies.

But imperfectly described is my dream garden, which I can see with my mind's eye and enjoy. You, too, though deprived of a physical garden such as you would like to possess, may enjoy a dream garden of your own.

NYPHÆA "MRS. G. H. PRING" PRING NEW WHITE-FLOWERED HYBRID

(*N. ovalifolia* × *N. "Mrs. Edwards Whitaker"*)

ACCORDING to commercial growers there is an increasing demand by the public for a tropical white day-blooming lily of large size. Up to the present time all tropical day-blooming water-lilies have ranged in color from pink to blue, with one exception, the species *Nymphæa gracilis*. The African species, *N. ovalifolia*, of recent introduction, has white flowers shaded with blue and pink at the apex of the petals. In 1919 experiments were started at the Garden with the object of producing the much-needed albino hybrid. Stock of *Nymphæa* "Mrs.

Edwards Whitaker" was selected as a desirable parent, in view of the pale campanula-blue flowers bleaching to pure white with age, a factor transfused through its parent, *N. ovalifolia*. The seed parent was between *N. gracilis* of Mexico and *N. ovalifolia*. Hybrids from *N. gracilis* in cultivation have not improved the offspring in size to the same degree as *N. ovalifolia*, nor has the white proved a recessive character in the second or third generations. In fact, experiments at the Garden with *gracilis* hybrids did not produce type *gracilis* or revert back to it (see Ann. Mo. Bot. Gard. vol. 4, p. 1). *Nymphæa ovalifolia* crosses so far have brought forth type *ovalifolia* in the second generation. *Nymphæa ovalifolia* was therefore selected as the other parent. Reciprocal crosses were made between *N. "Mrs. Edwards Whitaker"* and *ovalifolia*, producing varieties like the parent "Mrs. Edwards



Nymphæa "Mrs. G. H. Pring"

Whitaker." *Nymphæa ovalifolia* × "Whitaker" gave the desired result, producing both albino and Whitaker varieties. The best-flowered seedling showing Whitaker-shaped petals with white as the dominant factor was selected as the type flower, the foliage likewise showing Whitaker influence. This was carefully self-pollinated during 1920, the seedlings bringing forth albino flowers the next flowering season. In 1921 the finest plant was again selected and self-pollinated, producing the same type of flowers the following season. The desired hybrid was obtained by selection during three years, thus proving that the white coloration is fixed, provided of course that all foreign pollen is excluded.

It having been proved that the flowers had finally reached a stage of development superior to the white-flowered *N. gracilis*, specimen flowers were submitted to the Society of American Florists and Ornamental Horticulturists in convention at Kansas City, August 15, 1922, and the lily was awarded honorable mention. Mr. Charles Tricker, water-lily specialist of Arlington, N. J., visited the Garden after the convention, in the capacity of official judge, to report on the condition of the entire plant as growing in the pool. He stated that "the new hybrid presents the biggest one jump in the development of a new water-lily to date." The size of the flowers varies from eight to ten inches in diameter.—*Missouri Botanical Garden Bulletin*.

TENTH INTERNATIONAL FLOWER SHOW
GRAND CENTRAL PALACE, NEW YORK, N. Y.
MARCH 12-17, 1923

Do not overlook this important horticultural event

Anthericum

RICHARD ROTHE

CONSIDERING the great diversity in genera and species offered in hardy herbaceous plant catalogues the outsider is apt to take it for certain that he will find in modern American gardens adequate richness in variety, heightened by discrimination in selecting the material and subsequent originality in floral effects. As far as the average comes in question, I am afraid, in the main, we fail to come up to reasonable expectations. In looking over the contents we find ourselves confronted with a remarkable sameness both in plant material and its arrangement. Granted, we employ species of merit; we give proof of our sensitiveness in regard to harmony in color combinations, but after all, we remain loath to avail ourselves of anything beyond the well known traditional lines.



Anthericum Liliastrum giganteum

This self-confinement to a very limited number of species deprives us more or less of our opportunities to exert individual ingenuity. The garden owner, as amateur, looks to the horticulturist for practical leadership and the rank and file of the latter apparently lack ambition. Certainly, we have as exceptions here and there—gardens testifying to the mastership of their originators in handling and taking full advantage of the present wealth of beautiful plant material at our disposal. These are examples which at a glance show the thorough familiarity with the practical growing part of designer and caretaker; examples testifying to an innate love for the work done. Without those qualities we are bound to fail. Love creates the enthusiasm necessary for extraordinary results; the experience as growers keeps us aware of the limitations set by the cultural requirements of plant species. Practical knowledge alone safeguards artistic ingenuity from indulging in mere fantastical exploits, which, as utter failures, bring discouragement, blocking our road for advance. Object lessons of this kind demonstrating the present need of experience in the field of practical growing are by no means rare.

At a recent visit to one of Philadelphia's most advanced herbaceous gardens your correspondent had the pleasure of enjoying the attractive old-time picture of a few clumps of *Anthericum Liliastrum*, the well known St. Bruno's lily. The narrow grass-like foliage and the long spikes of small white flowers, sweetly fragrant, awakened in the beholder's mind vivid reminiscences of the past. We have

lost sight of this garden inmate of bygone days and are delighted to see it again. Similar impressions are gained when we find ourselves confronted with plantations of the St. Bernard's lily, *Anthericum Liliago*. But both species, of late, have been by far eclipsed by *Anthericum Liliastrum giganteum*. This new giant form of the old St. Bruno's lily, bearing stately spikes of large white flowers, resembling miniature Madonna lilies, represents one of the choicest materials for the refined garden of today. Plantations of the size shown by our illustration possess an irresistible charm. Perfectly hardy, a rather light, but well enriched soil with ample drainage is essential for thrifty growth. For northern districts the open sunny exposure is a necessity. In the Middle Atlantic States light partial shade seems to prolong the flowering season during June and early July. *Anthericum Liliastrum giganteum* may be raised from seed sown in early spring. To a limited extent we can propagate by division of the root-stocks. Leaf-covering during Winter will prove the best material for protection.

WHAT TO DO WITH FROZEN PLANTS

IT is safe to state that not a Winter passes by without a number of plants being destroyed by frost. Pot plants in particular, many of which could undoubtedly be saved did their owners know what to do with them when King Frost holds them in his icy embrace.

In order that we may better understand the treatment of frozen plants, it will be wise to briefly consider what happens when frost reaches them. The liquid contents of the cells become frozen and expand, the cell walls are ruptured, and the plant's tissues in general are disorganized. It is now a fairly well-known fact that a plant whose cells contain only a comparatively small amount of water will stand, without injury, several degrees more frost than a similar plant whose cells are turgid with liquid; therefore it is excellent practice, as a preventive of injury by frost, to keep plants as dry as possible without injury during the Winter months.

But supposing a plant or plants have been badly frozen, what are we to do to save their lives? The whole answer is given in three words, viz., thaw them slowly. It has been proved over and over again that if a plant is thawed sufficiently slowly, the cells are able to once more absorb their contents that have been displaced by expansion, and the plant is little the worse for the disorganization that has occurred. If it is a window or room plant that is affected, stand it in a very cool corner where the temperature is only slightly above freezing point, and keep it there until it has thawed.

The occupants of cold frames are often badly frozen, and if a sudden burst of sunshine is allowed to reach them much damage will be done. Keep the mats or other covering over them until a slow or gradual thaw takes place. But it is when the whole of the occupants of the greenhouse, owing to some defect in the heating arrangements, become frozen that the most destruction is likely to occur, and prompt measures must be taken if any of the plants are to be saved. As soon as such a condition is noticed, take care that the heating apparatus does not right itself and thus send up the temperature quickly. Then cover the glass with thick mats, straw or other shading material, in case the sun comes out and

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The Bog Garden

ARTHUR SMITH

COMPARATIVELY few people are aware of the multitude of charming plants which make their home upon peaty bogs. As it is useless attempting to make purely bog plants to grow, or at all events really thrive anywhere else, we must, if we desire their enjoyable company, create an environment suitable for them.

Superficially considered, there may not appear much difference between the requisites for a bog garden and a water garden. There is, however, a specific distinction which requires to be emphasized before we can thoroughly understand the principles underlying the construction of artificial bogs.

Many plants known as aquatics, or semi-aquatics, will grow in a bog, but no true bog plant will thrive as an aquatic. If a natural bog is examined, it will invariably be found to be composed of sphagnum moss and a black peaty substance, floating in water more or less deep, although perhaps touching the bottom at the edges, and a portion of this material on, or in, which the plants are growing is always raised above the level of the water. Thus, while part of the roots of some of the plants may reach the water below, nearly all of the plant itself is growing above, not in, the water, and if the water rises then the medium in which the plant rests, rises with it. Therefore while the bog plant is always living under conditions of perennial and abundant moisture it is never actually in the water.

In a swamp there is always more or less drainage in the sense that although water may be continually running in, it is also continually running out, and the swampy medium is closely in connection with the soil below. In a true bog drainage is practically non-existent, and there is invariably an underlying stratum impervious to water. Bogs are generally found in holes unconnected with running water, and they very frequently are found on mountains and alpine situations; in fact there are quite a number of alpine plants which are denizens of bogs.

From the fact that water does not flow or soak through a bog, bog-water is always more or less acid and dark-colored. This is a condition which is peculiar to bogs and which is not found in places where the water is always moving forward, even if slowly, and it is suitable to the existence and growth of certain fungi which are necessary to the life of many bog plants.

These fungi are really microscopic plants and they live in association with the roots of other plants, digesting their food, or at least most of it, for them. This association of root and fungus is technically known as mycorrhiza, and in Nature, bog soils are known to have a large number of mycorrhizal plants growing in them; that is, plants which will not thrive without the existence of their special root-fungus. It is worthy of note that many trees, shrubs and other plants living on upland soils, also exhibit mycorrhiza. There are two classes of mycorrhiza, one which penetrates the cells of the roots, known as endophytic, and the other known as ectophytic, in which the fungus invests the root with a covering of mycelium the threads merely coming into close contact with the root cells without entering them. In both cases, especially in the latter, the reason for allowing as much of the medium in which plants are growing to remain on a plant's roots when transplanting is indicated, and also explains the fact that there are many plants which will never survive the operation of removal to another place unless their roots are kept covered with the moist

medium in which they have previously spent their lives.

Actually, comparatively little is known of the delicate and complex relationship between the mycorrhizal habit of obtaining food used by bog plants and the acidity of bog water, but experience has shown that such relationship exists.

Natural bogs have been many hundreds of years reaching their present condition and their being where they are presupposes an underlying stratum impervious to water, therefore in constructing an artificial bog a water-tight bottom must first be secured.

Of primary importance is, of course, the position, and where there is an undrained area in a hollow, the problem almost solves itself. In such a case all that is necessary is to excavate the ground to a depth of not less than two feet, to any extent available or that may be desired, place a layer of puddled clay to make the basin surely water tight and then put in the soil mixture as described later on. Where there are no naturally suitable sites and in dry situations a bog garden may be made by forming a basin and lining it with concrete a foot thick over which should be smeared an inch or two of puddled clay not only for the purpose of making it absolutely water-tight, but also to counteract the action of lime contained in the concrete.

The size and form of such garden may be varied at discretion. While it is important to secure informality, as with all other natural gardens, one must guard against the stiff, or regular, informality which sometimes places the brand of artificiality over gardens of this kind. A visit to a natural bog, and the observing of its lines and characteristics will be very helpful to those contemplating the formation of a bog garden which will be artificial, but which it is desired at the same time to appear natural. Obviously the best material in the way of soil to use is that from a natural bog taking everything as it comes, with as much bog-water as possible, for which purpose barrels are the best things to move it in. When this bog-muck cannot be obtained a mixture may be made of leaf mould, commercial peat, wood-earth scraped from the surface, under oaks preferably, together with the twigs and leaves from the forest-floor, so that the mixture as a whole will form a spongy mass.

Irregularly-shaped mounds and ridges should be formed rising a foot or more above the water level. This not only gives a more natural and pleasing contour but affords a greater planting surface from a given area, and creates conditions for plants preferring to be more raised above the water than others; also plants can be better displayed than when the surface is entirely flat. Rocks to act as stepping stones may be placed at convenient intervals to enable one to walk about the bog, to see the plants and perform any work required connected with them.

When a piece of naturally swampy ground is chosen for the site of a bog garden it will be sure to have a crop of more or less coarse, water-loving plants, such as Cat Tails, Rushes, Sedges, and the like, growing on it. These must first be thoroughly eradicated root and branch, otherwise they will only work harm among and ultimately kill out bog plants.

A bog garden should not be formed in a position likely to be affected by storm-water, preferably it should be where water sufficient to take care of evaporation only should ooze or trickle into it. Effort should be made to

keep the bog just full enough not to overflow, so as to enable the whole material, which if properly constituted will be like a sponge, to remain thoroughly saturated, but at the same time no water should run out, otherwise the essential acids which are the life of purely bog plants will be lost.

Small pools of open water should be provided for in a bog garden for the purpose of growing the very interesting little plants known as Bladder-worts. These are different species of *Utricularia*, they have small purple and yellow flowers, some float on the surface and are supported by air-bladders, others root near the edge of the pool. They are the most delicate of all bog species. These bladders are also traps for supplying the plant with animal food; they have a valve-like door through which insects enter but cannot get out, and their substance is used as food by the plant. These bladders are most numerous and effective in connection with species living or floating in stagnant water.

With the exception of these open pools, the first step after getting the soil into position is to cover the whole with live sphagnum moss, this will soon take root and when once established will make a delightful carpet in which many of the plants will grow without being planted in the soil; other plantings may be made by pushing the moss aside and replacing it around the plants. This covering of moss also prevents evaporation and keeps roots cool.

As before stated, the reason for having a bog garden is that in it many very interesting and beautiful plants can be grown which would not thrive or even live in any other situation. Those who have seen any real natural bogs and who have studied the plants inhabiting them must realize the wealth of material that is worth while bringing into our gardens.

A bog garden is desirable even for the Insectivorous Plants alone, especially for those examples of the existence of brain-power in plants, the Sun Dew, *Drosera rotundifolia*, found in bogs all over the world, and the Venus Fly Trap, *Dionaea muscipula*, which Linnæus called the "Miracle of Nature." Then there is the queen of the peat bog, the Snowy Lady's Slipper, *Cypripedium spectabile*, the grandest of all our many beautiful native orchids. If this plant were native of a foreign country and could only be obtained at considerable expense, special conditions suitable for it would be created in many gardens for the sake of having it. Our native family of orchids contains many other charming plants and they are all for one reason or another worth growing, and, with only one or two possible exceptions, they will all thrive in bogs.

Curiosities like the Pitcher Plants, *Sarracenia*, and the lovely *Menyanthes trifoliata*, with its exquisite, wax-lake pale pink flowers, have both their homes in bogs. Altogether as William Robinson wrote "Conservatories of Beauty" are to be found, sometimes covering hundreds of acres, in natural bogs.

The following is a list of some of the choicer bog plants, some of which have already been mentioned: *Arethusa*, *Calopogon*, *Calla palustris*, *Calypso*, *Cypripedium*, *Dionaea*, *Drosera*, *Habenaria*, *Lewisa*, *Lilium parviflorum*, *Lophiola*, *Menyanthes*, *Narthecium*, *Ophioglossum*, *Primula parryi*, *Pyrola*, *Pogonia*, *Helonias*, *Sabbatia*.

When the area of a bog to be dealt with is extensive, or if outside the artificial bog garden the ground is more or less swampy and perennially moist, there are many worth while plants too coarse and rampant for the bog garden proper, which will revel in those conditions, and which will beautify such situations to a greater extent than the natural growth already existing, although some

of the latter will invariably be found to be worth retaining. In any case, and when the bog garden is constructed with dry ground surrounding it, it should be tied to landscape by suitable plantings. Also some tall growing subjects should be used on the outside of the bog garden to afford shade which some bog plants desire.

Among the shrubs suitable for swampy places may be mentioned, *Rhodora canadensis*, *Rhododendron vicosum*, *Kalmia angustifolia*, *Chamaedaphne calyculata*, *Ledum groenlandicum*, *Andromeda polifolia*, *Cornus sanguinea*, *Magnolia glauca*, *Clethra alnifolia*, *Vaccinium corymbosum*, *Vaccinium macrocarpus*, *Ilex verticillata*, and *Neopantes canadensis*.

Of herbaceous perennials liking wet ground the following are among the most showy: *Acorus calamus*, *Calla palustris*, *Iris pseudoacorus*, *Asclepias lanceolata*, *Osmunda regalis*, the herbaceous *Spiræas*, *Trillium*, *Hemerocallis*, *Lobelia*, *Myosotis palustris*, *Lilium*, *Parnassia*, *Symplocarpus Veratrum*.

When the soil conditions outside a bog garden are of the ordinary dry character any of the usual shrubs and perennial plants may be used to create conditions which harmonize and connect with the landscape.

JAPANESE BARBERRY

IN any list of the most popular shrubs, the Japanese Barberry (*Berberis Thunbergii*) would undoubtedly appear near the top. It's not a one-merit shrub but, on the contrary, possesses so many desirable features, is appropriate in so many different positions, that it well deserves the popularity evidenced by the demand for it.

First of all, the foliage and its arrangement, or habit of growth, is attractive. This attractiveness is not confined to a week or two, as is the case with so many flowering shrubs that win us with their bloom, but is present from early Spring until Autumn. In the latter season its crimson foliage holds us and this is followed by the scarlet berries so striking that even the printers of Yuletide cards now reproduce them, perhaps as an innovation over the timeworn Holly. Nor are these berries of the sort whose fleshiness soon succumb to frosts and are discolored.

With massing in the foreground with taller shrubs, the Japanese Barberry fills the bill. Its low spreading growth is desirable for use in this position and its small foliage ties in with the turf where a large leaved plant would appear bold or too much of a contrast. Its value as a foreground plant for evergreens should not be overlooked, not so much as a permanent plant—for it often becomes too large and will encroach upon the slower growing evergreens—but the protection its spiny branches afford in turning away canines; also children who might otherwise brush against the evergreens. For use in this manner it is well to keep the Barberry cut away from the evergreens lest the lower branches of the latter die off from crowding. If cutting back the Barberry is not favored another method is to transplant the plants away from the evergreens or replace with smaller specimens, the latter really making the best proportioned grouping as seen in newly planted masses.

For foundation planting the Japanese Barberry is one of the best plants to use on account of its low growth, well furnished base and all season attractiveness. The latter is especially desirable where the planting is close to the house and always conspicuous. Japanese Barberry, in connection with brick work, whether it be as base planting of a house or along a wall, forms a harmonious Winter combination, the red bricks, scarlet berries and brown branches blending most effectively.

—*Florist's Exchange*.

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN writing these notes, I may quite often write from the standpoint of ideal conditions. My readers must keep in mind that unless help that has had experience in garden and greenhouse is provided, along with modern equipment in both departments, there may be difficulty in carrying out some of the suggestions.

A garden is a big subject to think about, and in the carrying out of what one has in mind and what can be done with the equipment and help available, is the reason why many of us fall down. If one has an imaginative mind (and I plead guilty), a gardener is very apt to attempt things that are impossible to carry out, unless one has an unlimited supply of means. High cost of living and the fast growing tax rate has hit many once famous gardens hard, and if I read the signs of the future of gardening correctly, the days of the large garden and great ranges of glass houses are past, except occasionally.

Mankind will, I believe, always have a garden. It seems to be inherent in the nature of him, as travelers tell us that among the most uncivilized tribes, crude attempts at gardening are noticeable around their more permanent abiding places. Is it the backward longing for a lost Eden? Why not look the other way to "That City that hath foundations, whose Builder and Maker is God"? The word picture of it in Sacred Writ is strangely like a Glorified Garden, and that longing for an ideal garden, which I find in me, sees there its realization.

The garden in Winter, especially if it is more natural than formal in outline, has a beauty all its own, even in a month like the past January, which has been a record breaker for depth of snow and lack of sunshine. Occasionally, when the sun has come up in the early morning, the bold outlines of some of the larger deciduous trees, with patches of white snow clinging to their branches and the carpet of snow underneath make an impressive picture which city dwellers do not often see.

In a winter, like the present, evergreens and shrubs gives the gardener a great deal of anxiety. Damp snow, in spite of all his efforts, has anchored many branches flat to the ground, especially if these storms are followed by a quick sharp frost. By trying to release them quite often more harm than good is done. It is often better to let them alone, until Nature loosens them from the ground. If the bush seems out of shape, before the sap begins to ascend, put a stake with a crotch under each branch. If this is done, invariably they will come back to their former outline with very little loss of branches or flower buds. In dealing with Nature the gift of patience is a great asset.

During February and early March, it is better to take advantage of every good day and get all pruning of fruit trees done. I am a great believer in Summer pruning, but the majority of us have very little time to attend to it then. The principal idea in pruning is to preserve the natural outline of the tree and encourage fruiting wood, also to prevent overcrowding of the branches. If shape and spacing of the branches are taken care of, so that when the tree is in full leaf sufficient light penetrates to the centre, Nature, as a rule, will form plenty of fruiting wood. The advantage of Summer pruning can be readily seen when it comes to shaping a tree. The foliage is fully developed, and open spaces between the branches are more easily seen when it comes to thinning out the

more crowded parts. The cut over parts also heal more quickly. If a fruit tree is fully developed, and in good shape on the top, and does not seem to fruit well, generally the trouble will be found at the roots. Tunnel under the roots and give it a good root pruning. Cut over all strong woody roots, using judgment as regards distance from the trunk, according to the size of the tree. Immediately under the tree operated upon, a strong tap root will generally be found that has penetrated into the sub-soil. This root may be cut-back quite hard. Root pruning is better to be done in the Fall, but no great difference will be noticed if done quite early in Spring.

If fruit trees outdoors have become badly infected with scale insects, another spraying may be given now. A spraying in the Fall and another in the Spring is usually practiced, but a third will help to clean neglected trees far quicker. After every storm, a walk should be taken all over the grounds, and a sharp look made for any damage done to any of the trees. If any limbs are broken the jagged ends must be at least cut even, and smoothed over and painted. The entire branch may be better to be cut close to the main trunk if no decent breaks are behind the broken part.

Look carefully over all the shrubs for scale and attack them right away with the usual scale remedies. The common lilac is one of the worst for San José scale, we find, and complete eradication seems impossible.

All flowers and vegetable seeds necessary for the coming season are now better to be in stock, especially if one is quite a distance from a reliable seed firm. Tools of all kinds should be examined to see if any repairs are necessary and old worn out ones replaced. Our Spring season here in the East is short, and all these small things attended to now will save much time later on when the soil is fit to be worked outdoors. If one has no room in the greenhouse, and has plenty of frames available, many of the smaller growing vegetables may be grown in them. A hotbed mixture of manure is necessary for this work. Good horse manure for this is more difficult to get every year, making it all the harder for the willing and ambitious gardener to have such vegetables as carrots, beets, spinach, lettuce, dwarf beans, etc., at an early date. A row of early peas may be sown along the top of frost-proof frames, but this is only advisable if the family is small, unless the frame space is extensive.

Sweet peas should be sown now in small pots, two or three seeds to a pot. They can be thinned down to one after they germinate. A cold frost-proof frame is the best place for them, as they thrive all the better if sturdy and strong from the beginning.

Sow early cabbage and cauliflower; Brussels sprouts need a long season to mature, and should also be brought along in a cold frame so that nice plants may be available to set out when the season opens outdoors. An early batch of celery is also in order, also egg plants, peppers, and tomatoes.

Mushroom beds may also be made up for a succession. This crop depends on a good supply of horse manure in a condition that can be used for mushroom growing. Of late shavings and other refuse from lumber yards have been more used than straw for bedding horses, and other fungus growths rather than *Agaricus campestris* are likely to annoy one if droppings are gathered from a stable where that material is used for bedding. There is some difference of opinion as to what temperature one should

introduce the spawn into the bed, but if the spawn is good, around 75 deg. is generally safe. A building where the temperature can be kept close to 53 deg. will be found best to produce the crop. We have seen excellent crops under a carnation house bench. Keep the beds moist but not in a soggy condition. Mushrooms are always grown in the dark, yet we have seen an excellent crop, as mentioned above, under a greenhouse bench which was by no means shaded. The other day I picked four excellent specimens on a bench among *Antirrhinums* and *Calendula*, where no spawn to my knowledge was ever introduced. Furthermore, throughout the British Isles large quantities used to be gathered in old pastures when I was a young fellow, and all the darkness they received was during the night. I wonder if any experiments have been tried along this line. The best specimens we ever saw were grown in a cellar under a barn that had large cellar windows. The beds were always made in a rather rough and ready manner. The manure with all the straw in it was put in just as it came from a nearby horse barn, in the old days of horse cars, moistened down with a hose, and left until the temperature fell to 80 deg., after which the spawn was introduced in the usual way. A large pile of manure was always left near the door and the steam evaporating from it was always more or less condensing over the beds. The gardener there was keen on exhibition work and I remember the mushrooms being shipped from Boston to Philadelphia Spring Exhibitions. The size and texture of those mushrooms attracted considerable attention there. One exhibitor, who was in the commercial line and had been having it pretty much his own way, as a successful mushroom grower, was beaten that time. He did not like it very well, and flung out at my boss that his specimens were not shipable mushrooms. With a quiet grin Davy said, "That's strange; I shipped them from Boston by American Express a day ahead of myself."

Sometimes, very early in March, if one has a piece of well sheltered land facing south, peas may be sown outdoors. I have done this when the ground was quite moist; in fact, I find from my note book, that in 1921 we sowed peas, spinach, carrots, beets and parsley on March 9, and on the ends of the rows, we broke the frosty lump to finish the lines. There was one piece of ground, about three yards long, that was quite lumpy with frost. However, the seed was sown and the lines completed. I naturally watched the development of the crop on that frosty piece, and could see no perceptible difference in the rows either in germination or growth. That year we picked peas, beets and carrots on the 9th of June, grown entirely outdoors. One of my neighbors beat me by two days.

If one has stored a good stock of rhubarb roots they can be easily forced under a bench in the greenhouse. Asparagus is a vegetable that forces easily, four to five year old crowns are best for this purpose. This necessitates a great deal of labor, time, and foresight. Box in a space under a greenhouse bench that is run around 60 deg. A six inch board will be about right, and pack in the required number of roots with soil covering them about three inches deep. Where a supply can be kept up, batches may be brought at intervals of three weeks.

Onions that were started for exhibition purposes about January 1st should all by now be potted off. Some of the best growers around here plant them out of 3½-in. pots, which means they receive two pottings. The leek is another exhibition vegetable that should now be started.

After March comes in, good cold frames can be freely used for the more hardy plants that are to be used for bedding purposes. Care, however, must be taken that they have ample covering for any cold night that comes along.

IN THE GREENHOUSES

The greenhouses, by this time of the year (late February and early March), will be quite gay with many Spring flowering plants. Some of the acacias and other Spring plants that are intended for Spring shows the latter part of March, will have to be kept quite cool. A little shading will not be amiss if they show signs of being on the early side in flowering.

Carnations are now flowering freely, and as the sun gets stronger, with heavy firing, red spider will soon gain a foothold if the plants are neglected. Select a bright day for watering the benches, and at the same time give them a good syringing in the early part of the day. Clean water properly applied under pressure is the best thing I have found for that pernicious insect. A little stimulation with sheep manure and Clay's Fertilizer alternately, will help the carnation plants from now on. The benches, if they have done well, will be well filled with roots, and with frequent waterings will leach out the plant food more quickly.

The rose house by this time will have quite a good deal of blind wood and thinning out a little of it will encourage stronger breaks. Roses are very hungry plants and can use up plenty of food in variety. They also like plenty of water syringed on the plants and at the roots, especially if they are grown on shallow benches. Every bright day early in the forenoon, they should receive a good syringing and once a week, at least, some plant food.

Primulas are now flowering nicely, and a little plant food once a week will help to keep them agoing. Cinerarias are also in vigorous growth and some of them will now be flowering. Those intended for exhibition will have to be kept quite cool. Waterings with soot water will bring out the colors with added brilliancy.

Amaryllis, or *Hippeastrum*, will not need attention. As soon as they show signs of flowering, remove the loose soil from the top of the pot and give them a top dressing with a good loam, that has been enriched with bone meal and Clay's Fertilizer. A good light bench in a temperature around 55 deg. at night suits them well. When in flower, a slight shade will prolong the flowering period. Feed them well with liquid manure and water when they get into vigorous growth.

Erlangea tomentosa has been flowering all the Fall and continues with us throughout the Winter on a shaded bench. We find that the color does not bleach out when kept in the shade, and on this account, its lavender blue flowers are always favorites. Keep young rooted cuttings moving along as they require it. *Erlangea* does well planted out on a bench. When cut, the flowers keep better if placed in warm water.

Do not neglect any cuttings of *Buddleia asiatica* that have been rooted. After *Stevia* has gone past, this valuable plant, we find, is the best for taking its place, both as a plant and for cutting. It can be kept in bud for a long time in a cool pit and brought in in batches.

For anyone looking out for a fine flowering specimen plant in Summer *Stephanotis floribunda* is one of the best. It looks well trained on a balloon trellis, and is one of the freest flowering plants we know of. Pot in a good rich, fibrous loam and give it greenhouse treatment, that is, a temperature around 50 deg. The house we have it in is an old style one with plenty of wood in it, and we never shade it in Summer. I have no doubt but that a modern house would have to have a slight shading in Summer. *Stephanotis* used to be one of the worst plants to keep clear of mealy bug, but since the advent of Hydrocyanic gas, we have no trouble keeping it free from this insect.

The genus *Hoya* has a few varieties that also make excellent Summer flowering plants, *Hoya carnosa*, *H.*

imperialis, and the beautiful, shrubby, *H. bella*. They grow well in a good turfy loam in a greenhouse along with *Stephanotis*. From November until February they need to be kept rather dry to ripen their wood for flowering.

Secure cuttings of such plants as *Acacia*, *Boronia*, *Bauera*, *Eriostemon* and heaths at this season, which root readily in a propagating bed with a bottom heat of about 75 deg., keeping the top from 45 to 50 deg. Azaleas, now that they are denied admittance, can be rooted in the same manner if the wood used is not too hard. In about three years they will make nice small plants. It is very interesting to watch the development of seedling Azaleas if one has the time to devote to it. Any gardener visiting around Boston in the Spring should pay a visit to Holm Lea, Prof. Sargent's place in Brookline, Mass. Mr. Sanders, his gardener, is a master hand at raising seedling Azaleas and has some fine varieties of his own raising.

Camellias may be rooted the same as the hard wood plants noted above. They are now flowering freely and care must be taken that they don't get too dry at the roots. They flower best in a night temperature of 45 deg. Bougainvilleas may now be brought along in heat. Keep them well syringed and tie them into whatever shape is most pleasing to those that enjoy them when in flower.

Early plants of *Clerodendron Thomsonae* (probably better known as *C. Balfouri*) may now be started into growth in the sunniest part of the tropical house. If they are not thoroughly ripened off, that is, if the old leaves are still clinging to the twining wood, take them into some shed, away from the greenhouses and give them a good whiff of sulphur fumes. One will be astonished how even they will break into eyes all over last year's growths after this treatment. They can be had in flower in about eight weeks by giving them a night temperature of 65 deg., running it up during the day to 85 deg.

Sow an early batch of Queen of the Market asters; also antirrhinums, *Tagetes* and *salpiglossis*. Small seeds sown on the top of sifted sphagnum moss without covering them, we find, do much better than when covered with sifted loam or sand. The fungous growth, called damping off among gardeners, we have never seen if sphagnum is used.

Some of the early flowered calanthes will be showing signs of starting into growth. It is advisable to shake them out, and repot in fresh soil before the young growths send forth roots, as the young roots are likely to be damaged in the operation. They grow well in mixture of the fibre of loam, sphagnum moss, and a third of dried cow manure. Keep them shaded, near the glass, in the warmest corner of the tropical house.

By the end of February the orchids will have to have a thin shade over them. If one has not roller blinds, we find that a very good shade can be made with a couple of table spoonfuls of white lead to two quarts of kerosene oil and spread evenly over the glass. This mixture lasts well and is easily removed. I would on no account use linseed oil in the mixture as it is very difficult to clean off the glass.

Dendrobium nobile will now be flowering, and when they have finished, repot any that require it, also remove any shriveled up back bulbs. They like to make their growth in a humid tropical heat and only lightly shaded. They ought to be carefully watered until the young growths are well up, for if moisture gets into them one is sure to lose them. The same holds true of *Dendrobium Phalenopsis Schroderei*. Dipping is the best method of watering these plants as one can keep the water well

away from the growths. We find also that both these *Dendrobes* respond to feedings with weak liquid manure after they emit roots from the young growths. We use a handful of hen manure to three gallons of water, preferably rain water once a week, and alternate with the same amount of Clay's Fertilizer.

The early vines will now be setting fruit, and syringing should be discontinued until a good set is secured. A night temperature around 65 deg. should be maintained, rising to 80 deg. during the day. There is some difference of opinion about stopping the shoots ahead of the fruit, we practice three joints and allow laterals to run out so that all the glass is covered. After the fruit is set, we always give the border a sprinkling of Clay's Fertilizer or Thomson's Vine Manure and point it in. I think it is a good thing to keep the border as loose on top as possible by frequent stirrings. Of course, care must be taken that roots are not broken.

Let pot fruit come along naturally. In forcing for early use try to imitate natural conditions as much as possible at this season. High temperatures will result in ruin, and on the other hand, draughts from cutting wind, from ventilators must be avoided.

Peaches and nectarines should be thinned down to about three hundred fruits to the tree, less would be better. I refer to a tree with about nine feet of spread on each side and about nine to eleven feet in height.

Keep up a succession of melons if one has plenty of space. No one, however, should attempt melon growing in Winter, unless they can command a night temperature close to 70 deg. and, furthermore, there is also some difficulty in setting the fruit, which must be done by hand.

FROZEN PLANTS

(Continued from page 39)

causes a sudden thaw. After these precautions have been taken, secure a good supply of very cold water and syringe the plants, pots, staging and glass with it until the whole are drenched. This will cause a very gradual thawing to take place, and many plants will be saved. Leaves will probably be lost, and the plants will need several weeks to recover from the shock; but better this than a total loss.

Half-hardy plants growing in sheltered positions out of doors are often ruined by the removal of the protecting material as soon as a thaw sets in. Such protection should be left on until all signs of frost have gone from the plant under notice. If such a specimen has had no protection before frost occurred, much good might be done by covering it with mats after it is frozen but before it thaws. *Exchange.*

DYNAMITING HOLES

Years ago there was a veritable craze for dynamiting holes for apple trees, and the dynamite companies boomed this method of hole preparation as being simple and inexpensive as compared with digging them in the regulation manner. This method of hole preparation is still being practised and is necessary to break up certain kinds of hard pan and very retentive loam. Hardly an apple grower in New England now practises it. The fruit men find that while apples and other fruits in dynamited ground made tremendous growth for two or three years, at the end of six or seven years, trees planted in holes dug out in the regulation way were superior. The Arnold Arboretum of late has adopted dynamiting its holes and finds the labor cost to be much less. It will be interesting to note how the growth of trees and shrubs in these holes a few years hence will compare with the undynamited ones.

RELATIONS BETWEEN GARDENERS ON LARGE ESTATES AND NURSERYMEN

(Extracts from a paper read before the New England Nurserymen's Association at its convention held in Boston by Robert Cameron.)

THE text of my subject is taken from the Gospel according to St. Matthew, Chapter 7 and verses 1, 2, 3 and 5. Please give special attention to the words and I know if you do, you will be better men when you leave this room.

1. Judge not that ye be not judged.
2. For with what judgment ye judge, ye shall be judged and with what measure you mete, it shall be measured to you again.
3. And why beholdest thou the mote that is in thy brother's eye; but considerest not the beam that is in thine own eye?
4. Or how wilt thou say to thy brother, let me pull out the mote out of thine eye, and behold a beam is in thine own eye.
5. Thou hypocrite, first cast out the beam out of thine own eye; and then thou shalt see clearly to cast out the mote out of thine brother's eye.

Is it not true at this time that one fact stands out clear and undisputed, that after centuries of teaching and preaching, crime and immortality and downright dishonesty and hypocrisy are more plentiful than at any other previous time in our history? This is not only true of our own country, but of practically every country in the world. There isn't a single day one takes up his newspaper but one reads of the most horrible crimes, scandalous thieving, grafting and blackmailing. Is it not time that we asked ourselves, "What is the cause of all this devilment?" The only way to get at the facts is to try and get back to the cause. There is no lack of churches, schools, Sunday schools and every imaginable kind of sect and creed to make people good and help them to live upright lives. Yet you will see at once from my previous statement about the condition of things in the world that the work done for centuries by the institutions I have mentioned have failed in their endeavor. Why have they failed? The answer is simple and not far-fetched. We are all hypocrites. We are not doing or have not done what we promised to do.

To most of us our religion has been one of one-day-a-week. Most of you believe, undoubtedly, in keeping one day holy and go to church on Sunday. The other six days your Sunday religion is forgotten. What we need is a religion that is good for seven days a week and 365 days a year.

The Fourth Commandment that was handed to Moses is no good for the present times. It says, "the seventh day you shall keep holy." It ought to be revised and to read,—Seven days shalt thou keep holy and do nothing on any day that you would not do on Sunday.

I have read of 40,000 Odd Fellows parading our streets in Boston, 100,000 Masons, 75,000 Knights of Columbus and many other organizations. Many of you here undoubtedly know the solemn obligations these men take. Ask yourselves, do they keep their obligations? If they did live up to what they promised, My! we would have perfect conditions here. That number of upright men would soon change the conditions of the world.

The curse of the world at this time is selfishness and greed, and we are just as bad as others. For a dollar we will sell our reputation. The curse of our country is the almighty dollar. The poor man gets more happiness out of the world than the man who has nothing in his mind but always chasing the dollar. Did you ever know of anyone to take a dollar with him when he left this world?

By this time you are wondering why I have taken up the subject you assigned to me in this manner. I have

tried to point out to you that we are all weaklings and have our shortcomings and that there isn't much good in any of us.

The subject you assigned to me is—"Relation Between Gardeners on Large Estates and Nurserymen." I am not my brother's keeper, consequently I am not responsible for his actions. Undoubtedly you know much more about gardeners than I do and what I will have to say will be mostly my own experiences and observations.

I might say that I do not consider nurserymen better than any other class of men. I have found some of them honest and some of them dishonest. Neither do I consider gardeners to be any better or any worse than the average man. One thing I would like to say and that is, that there is ample room for improvement in both classes of men if all the stories that are heard are true. I will also say this, that of all men, gardeners and nurserymen should be the least susceptible to evil doings. Their work is amongst Nature's most beautiful productions, consequently their thoughts and deeds ought to be bigger and better than the ordinary man in his occupation.

One thing I would like to impress upon you and that is this, that all gardeners are not dishonest, that there are many good and upright men in the profession. There are some black sheep in every flock.

On a large estate the gardener has in many cases from one to three millions of dollars' worth of property under his care. There are large expenditures and he has the handling of a lot of money during the year.

It would interest some of you, I know, to hear of some of the temptations that are thrown in the way of a man in charge of a large estate. I hope you will forgive me for giving my own personal experience in dealing with gardeners, because I have never been in business and never sold a plant in my life.

(Mr. Cameron here related some of his experiences with tradesmen, but he never fell to temptation.)

One must always remember that the man who gives commissions is just as guilty as the one who takes it. If a man gives it because others give it, he is no man at all that will not stand up and denounce this mean habit. In the long run he would be better off if he denounced it.

There is only one way to get rid of this practice and you men know the way just as well as I do, but I think you haven't the courage or the backbone to do it. The only way to abolish this practice is for the trade to discontinue it. If you will not pay commissions or indulge in even worse offences, than the gardeners can not be participants in this evil doing.

To me there is no occupation like gardening and anything you can do to make it cleaner and better I shall be glad to give you any assistance that is in my power. But first of all make up your minds that you are willing to give up this custom of giving commissions and there will be a quick death to this detestable habit.

At the conclusion of the reading of the paper an interesting discussion followed. The Boston *Herald* in reporting the convention said, "Robert Cameron of Ipswich, retired president of the National Association of Gardeners, spoke on 'Relations Between Gardeners on Large Estates and Nurserymen,' scoring the practice of offering gratuities to secure sales. His address was so effective that the gathering immediately proposed an amendment to the by-laws of the association, providing that 'any member of the association found guilty of giving a gratuity to a gardener, or other person, shall be prosecuted by the association and be expelled from membership.'"

It was proposed to invite the National Nurserymen's Association and the American Seedsmen's Association to follow the action taken by the New England Nurserymen's Association.

Foreign Exchange Department

A DWARF HORSE CHESTNUT. The North American Horse Chestnut (*Esculus parviflora*), or American Buckeye, is a most distinctive shrub or low tree, and one which would be more widely planted were it better known. In this country it grows to a height of some six feet to ten feet, with a wide spread of branches and the noble foliage which is common to most of its race. Above the copious leafage the white, sweet-scented flowers, with their red-tipped stamens, rise in erect, pyramidal clusters in August, so that an established specimen, or group of them, makes a most charming and effective picture in open woodland or on the lawn. This is a most desirable Horse Chestnut for gardens of moderate size, and its late-blooming habit will appeal to many. It is also known as *Pavia macrostachya*.—*The Garden*.

THE ALPINE CATCHFLY.—An indispensable occupant of almost any rock garden, however small it may be, is *Silene alpestris*. It is consistently free-flowering, and so easy to grow that the merest tyro in the culture of Alpines may embark upon its cultivation if possessed of a little rockery, or even if that is not available it may be attempted, with every prospect of success, in the front of the mixed border, where the soil is not too heavy. It is a charming little dwarf plant of slender growth, with pretty leaves, and giving in abundance from May to July a succession of its beautifully-formed glistening white flowers. In cultivation *S. alpestris* appears to like a moderately light soil, but it is not too fastidious, although it does not flourish well in stiff clayey soils. Loam and peat or leaf-soil with a good dash of sand seem as good a compost as one may have. Its height is given by as many as three inches, but it is sometimes a little more. It is always neat, however, and is such a pleasing subject and blooms so satisfactorily that it ought to find a home in every rock garden. It is increased by division, and can also be raised from seeds, which are best sown in pots in light soil and placed in a frame or cool greenhouse. —*Gardening Illustrated*.

HYPERICUM CORIS.—Here we have one of the choicest gems of the rock garden, albeit one which is generally easy to please. Sometimes, in our colder localities, it suffers sadly in certain Winters, yet, as a whole, it is hardy. It is one of our most precious St. John's Worts, and one which writers on alpine flowers never tire of praising. It has delicate little stems, which serve to carry its exquisite leaves of bluish-grey, which in their arrangement and general appearance remind us of some of the Heaths. On these, again, are borne the star-like flowers of good size and of a charming tone of pale gold, the whole plant, especially when of good size, having an elegant and chaste effect. Those who know it in its native habitats, especially in the Southern Alps, wax eloquent over its charm as they see it there in clouds, as it were, and showing its grace and loveliness in a manner we cannot hope to enjoy in the limited space of our gardens. Save for its liability to suffer in severe Winters in certain places, it is hardy, but it is not generally known that it is naturally a limestone plant, though not invariably so. It is more plentiful by far on the limestone formations. It is pre-eminently a plant for the rock garden in a sunny place. —*Gardening Illustrated*.

A "BLUE DAISY" FOR THE ROCK GARDEN.—There are several so-called "Blue Daisies" for the rock garden, none of which is either a Daisy or blue. *Erigeron leiomerus* is the best and prettiest of them all, a delightful, thrifty little plant, forming compact carpets of narrowish leathery leaves half an inch high and carrying in May or June a generous crop of lavender blue Daisy flowers on stiff, erect stems only two inches high. It is like a tiny, very dainty edition of *Aster alpinus*. It grows sedately but steadily, forming neat mats. After a year or two in one place *E. leiomerus* is apt to grow leggy—in its small way—but an occasional top-dressing soon remedies this, or the plant may be dug up, pulled to pieces and transplanted. —*The Garden*.

STANDARD ROSES.—In choosing a standard Rose one would favor a young plant; that is to say, a specimen budded last year and grown in the nursery this. Such have youth and vigor, and I should regard one that has been in the ground longer, and may be cut back a season or two as faulty, even if it had a fairly bushy top or head. Plants or trees like this which have been hanging about in the ground so long rarely do well when replanted. If I selected a Briar, one that is young-looking, if in reality comparatively thin, would be favored as being likely to furnish my future standard a tree that would last. This would be a greater consideration even than the size of the head of growth. When planting there is a small item easily forgotten. This is at once to stake the tree. When the stem is secure there is a chance given for the roots at once to start into new growth, but if swayed by the winds tiny rootlets become injured, and thus we lose time. A standard Rose may be deeply planted. The roots of the Briar

should be just covered, trod firmly, and they obtain all the advantages of surface soil. A form of standard out of the ordinary is a variety with a climbing habit of growth worked on to a tall Briar. Such furnish splendid objects in isolated positions, and are trained by tying in the points of long-flowering shoots made the previous year to the standard stem. —*Gardening Illustrated*.

SOME MUSK ROSES.—That delightful Himalayan Briar *Rosa Brunonii* should be in every collection of Rose species. It is a prodigious grower and profuse bloomer when established. There seems to be some confusion with these Rose species. I always look upon the variety known as *R. polyantha grandiflora* as a near relative to *Brunonii*. In any case, both are worth growing. As with all the Musk Roses, huge panicles of bloom are a feature of *R. Brunonii*, and the pure white flowers with profusion of yellow stamens have a simple beauty all their own. Closely allied to this is one *Mme. d'Aublay*, a semi-double white, and also a rampant grower. The wood is apt to suffer in a hard Winter. A grand variety of the Hybrid Musks that every lover of single Roses should possess is *Miss Florence Mitten*. I know of no Rose that so persistently holds its blossoms, and the large Apple blossom pink flowers remind one of a glorified Alexandra Day Rose. Unlike the others I have named, it is a more compact grower and blooms right down to the ground. —*The Garden*.

A FINE MOCK ORANGE.—To those who know only the common form of the Mock Orange, *Philadelphus Virginalis* is a revelation. This is the largest flowered of its race. The blossoms are semi-double, nearly three inches across, and a cold, snowy white. In the purity of their whiteness and the compactness of their form, they might be likened to a double white *Camellia*, and the large, unusually deep green foliage tends to increase that similarity. The characteristic fragrance of the Mock Orange is, however, almost absent in *P. Virginalis*—an omission for which some may have cause to be thankful. This plant will succeed in any average soil, and is generally deemed a hardy, easy-tempered shrub that most people can plant with every confidence of success. —*The Garden*.

BUTCHER'S BROOM.—I have just had given me by a friend, who brought it from her garden at Bridgwater, a branch nearly two feet long of this uncommon shrub. It is covered with its bright red berries from top to bottom. The dark green cladodes, with the bright red berries about the size of large peas, are most attractive. I have seen this many times, but never so thickly set with berries, no doubt due to the very hot Summer of 1921. It grows well under the drip of trees, and seldom attains more than two feet high. I have the spray in a glass against a high wall, and purpose allowing it to remain there to see how long it will last. —*Gardening Illustrated*.

ACONITUM ORIENTALIS.—It is a plant certainly worth including among our hardy plants for its neat, sturdy habit, unusual color and great freedom of flowering at the end of Summer. The height does not exceed two feet, while the much branched stems bear foliage remarkably like that of the *Delphinium*, and terminate in short close spikes of pale yellow flowers. It will succeed in practically any soil and is not particular as to situation, for we have seen it rendering a splendid account of itself in partial shade, as well as in positions fully exposed to sunlight. Indeed, there can be no doubt that it prefers the latter but—at the same time—it is a plant to note where shade is fairly heavy with, however, the proviso that it is not overhung by trees. —*The Garden*.

COLCHICUM AUTUMNALE.—Though not the choicest of *Colchicums*, by any means, this is a very useful species for massing, and as it increases rapidly, it soon makes a good show. I saw a large drift of it recently in a country garden bordering a drive through some thin Beech trees, and it made quite a carpet of bright color. The soil, which was rather light and sandy, seemed to suit it admirably. The drawback to these Saffrons is the large, rather coarse foliage in the Spring, which is not very pleasing, especially when it begins to go over. With this and other *Colchicums* it is necessary to be on the lookout for slugs when the buds appear, as these pests are very fond of nibbling off the tips. —O. C. C.—*Gardening Illustrated*.

Department of Book Reviews

OLD-TIME GARDENS, by Alice Moore Earle. The Macmillan Company, New York.

Presented anew, in attractive form, is this delightful book, which though nearly a generation old, is, in its ideals of what constitutes the charm of gardens, fully modern; good taste is leading us back to the tried and the really satisfying. The author felt, for example, that "an ideal flower garden must be an enclosed garden.

It may be said to hide so much beauty from general view, for homes are not made for passers-by." Quite modern is the cordial appreciation of species of flowering plants also whose superior and dependable merits have gained proper emphasis only within the past few years, notably the peony and the iris.

But the main worth of the book lies in its telling so entertainingly a wonderful amount of flower lore. In the chapter given to Sun Dials and Herbs there has been gathered together apparently all worth-while that has ever been written by the poets and the learned upon these subjects. The author's acquaintance at first-hand also with the old gardens of the New England colonies, their contents and connections of all kinds and the legends clustered around them is large. Nice discrimination is revealed by the choice of the pictures, too, and by their composition. They number about two hundred and twenty-five.—F. B. M.

THE HOME VEGETABLE GARDEN, by Ella M. Freeman. The Macmillan Company, New York.

This second in the series of "Genial Little Books About the Out-of-Doors" well deserves rank along with the editor's own volume on the Apple Tree, by which the series was so fittingly introduced. The book is not the findings of a person who has merely scratched the soil and then rushed off to print. It consists of uncommon good sense resulting from interested and intelligent experience by which even the beginner might learn to garden successfully and even to make the most satisfactory use of the products. Particularly valuable for the novice is the advice, interjected at proper points throughout the work, about fertilizers for the vegetables, a subject that very much has needed simple treatment in these times, when the old-fashioned and most reliable form is so hard to find.—F. B. M.

PLANT MATERIALS OF DECORATIVE GARDENING, by William Trelease. Published by the author, Urbana, Illinois.

Of thin pocket size this manual is designed to aid the students of botany in a field to which in the schools few of them have little introduction, if any at all. For the landscape gardener or planter it offers small use other than to aid him also in identifying the most common materials of his art by their stems or leaves or the general structure of their wood and pith. The working of the key is explained at the start so that the person familiar with the principal terms used in distinguishing plant forms, if he employs the glossary and in case of doubt checks up with the aid of the index, should as a rule have no difficulty in classifying and naming, even without attention to their flowers. 1,159 distinct kinds of trees, shrubs and herbaceous plants used in ornamental planting in the eastern part of the United States and in Northern Europe. Compactness has barred out all but a very few references to the availability of any plant in landscape design.—F. B. M.

AMERICAN PLANT NAMES, by Willard N. Clute, Joliet, Ill.

The book is a compilation of every known common name under its proper genus and species, with the correct common name indicated, as *Kalmia latifolia*, Mountain Laurel, American laurel, calico-bush, small laurel, wood laurel, spoon-wood; ivy, big-leaf ivy, ivy-bush, clamoun (poison ivy). There is to follow an abundantly cross referenced index which will enable the investigator to find any name in its proper place at once. The work is issued in parts at fifty cents a part, and there are to be about seven parts. The area covered is the northeastern states.

Brief Horticultural Jottings

The fact that Bouvardias when propagated from root cuttings are likely to show variations in color was pointed out by George F. Stewart in his greenhouse notes. Double flowered varieties have also been known to revert to singles when propagated by this method.

New Jersey's agricultural department hopes to produce a blueberry one inch long. Millions of Americans reading that will look back to days when they used to pick huckleberries smaller than the tip of their little finger, bending over to reach the bushes, a few inches high.

How rich the human race would be if it would confine its energies to getting wealth out of Nature and the generous earth, instead of one man trying to get it from his neighbor, or one nation from its conquered enemy!

Plans are rapidly perfecting for the early distribution of one Rose Mary Wallace and probably two of the new Dr. Van Fleet Hybrids, to be introduced by the American Rose Society who at present is co-operating with the Department of Agriculture for this purpose. Any firm, wholesale or retail, desiring to make application for these, should write for terms at once to Robert Pyle, President American Rose Society, West Grove, Pa.

Apples without cores or seeds are promised by a discovery announced at Abbotsford, Canada. According to the announcement a seedless and coreless variety of Fameuse apple has been developed which differs but slightly in shape from an ordinary Fameuse by being longer and flatter at the ends, but with the typical coloring and flavor. Except for a slight marking on the flesh which outlines the situation of the core in an ordinary apple, there are neither core nor seeds.

The apples were developed in an orchard at Abbotsford and the discovery that they were out of the ordinary was an accident. They had come from a new block of Fameuse, about eight years old, bearing for the first time in market quantities.

That plants grow more quickly by moonlight than by sunlight is now being demonstrated at the Hartley Botanical Laboratories of Liverpool University. The research followed the remark dropped by a gardener named Hayes Swanley of the Horticultural College to Miss Elizabeth Semens of Liverpool University that cucumbers grew two or three inches more in the moonlight than by daylight and the seeds germinated better under the moon.

Miss Semens began experimenting and in the last six weeks has made considerable progress by artificial light. She finds that the polarized light of the moon gives a spurt to seed germination and that polarized artificial light has a similar effect. Miss Semens says that moonlight can be polarized only during certain phases of the moon. She finds that when seeds are exposed in tanks of water to the direct action of the moon germination is greatly quickened. When there is no moonlight she exposes starch grains to polarized artificial light and finds that they break down, producing little masses of dextrin and sugar crystals. She says the outer skin of the leaf acts as its own polarizing apparatus and it is believed that we may be on the eve of learning what occurs within the leaf itself.—*New York Herald*.

Wild flower gardens make good sanctuaries for birds and bees, which are often in danger of starving to death through the wholesale cutting of wayside weeds. I hope to see all the Audubon societies of America interesting themselves in wayside gardening, making waste places to blossom as the rose, that they may become perpetual feeding grounds for bird and bee and thus protect our growing crops, which are everywhere being destroyed by hungry birds and bees.—A. V. G.

The item in the last issue of the CHRONICLE, extolling the virtues of hot laundry soap as a cure for the poisoning caused from handling *Primula obconica*, prompts me to ask for the name of that particular brand of soap.

I am one of the unfortunates who cannot touch any part of this plant without suffering for several days after from a crop of watery blisters, no matter whether in a perspiring state or as "cool as a cucumber" when the contact is made. I shall admit, however, that the resulting itch is much more annoying the warmer one gets. Bathing with good hot soapy water was tried once and it did produce an effect, but it was something akin to an electric shock, which impelled an ungainly attempt to dance. Sponging with alcohol (before prohibition) would give temporary relief, but sugar of lead solution is the best remedy in my experience thus far. The strangest thing of it all is, that previous to ten years ago, I could handle this plant with immunity.

In this connection there is one plant the name of which I shall always remember. It is *Laportea gigas*, a tropical plant closely related to the common stinging nettle. Some years ago my bare arm came into contact with the spiteful plant, and a violent throbbing immediately began under the affected arm, accompanied by a feeling of nausea which lasted for several minutes. Relief was obtained by the free use of alcohol (outside application only) and for several days white blotches showed where the fierce, stinging hairs had bitten.

H. E. DOWNER.



National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa. (Date not decided.)

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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Secretary	Treasurer
M. C. EBEL, <i>New York, N. Y.</i>	MONTAGUE FREE, <i>Brooklyn, N. Y.</i>

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LOCAL BRANCHES

NEWPORT, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.

ST. LOUIS, MO.: George H. Pring, chairman; Hugo M. Schaff, secretary.

NASSAU COUNTY, L. I.: James Duthie, Oyster Bay, chairman; John McCulloch, Oyster Bay, secretary.

BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Graig, Weymouth, secretary.

WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of the above Branch was held in the Carnegie Library, Pittsburgh, on Jan. 16th. There was a good attendance considering the inclement weather. It was proposed that the National Convention shall be held on Aug. 14, 15, 16 and 17, if suitable arrangements can be made. John Barnett, President of the National Association, outlined a few plans regarding the convention which were enthusiastically received. A committee was formed to make inquiries regarding accommodations at hotels, a suitable convention hall and report to the secretary. A vote of thanks was extended to The H. G. Heinz Company of Pittsburgh, who are known throughout the world for their famous 57 varieties, for their kind invitation to visit their plant and partake a special luncheon put up by the company. This invitation is extended to

the Convention to come in a body. John Jones was appointed a delegate from this branch to attend the meeting held in the Herbarium Room, Pittsburgh, on Jan. 17.

The following applications for membership in the National Association were endorsed by this branch: Jas. Moore, West Park; Jas. E. Murphy, Sewickley; Robt. Ladner, Swissvale, Pa.; Geo. Brownhill, Pittsburgh; John Fornoff, Pittsburgh. The next meeting will be held on Feb. 20 at the Carnegie Library, Pittsburgh. All members and friends interested are cordially invited to attend.

HENRY GOODBAND, Sec'y.

NEW MEMBERS

Sustaining Members. Mrs. Robert Bacon, Westbury, L. I. (Alfred Reoch, superintendent); Frank B. Black, Mansfield, Ohio.

Active Members. R. J. Cruickshank, Rosslyn, Va.; Colin Aitchison, Greenwich, Conn.; Chester E. Greenwood, Scranton, Pa.; Sidney Paynter, Niles, Ohio; G. W. Peterson, Plainfield, N. J.; James E. Murphy, Sewickley, Pa.; James Moore, George Brownhill, John Fornoff, Pittsburgh, Pa.; Robert Ladner, Swissvale, Pa.; Eric Gerle, Augusta, Mich.

AMONG THE GARDENERS

A farewell party was recently tendered John W. Baxter, for twelve years superintendent of the Houghton estate, Dartmouth, Mass. Mr. Baxter has accepted the commission to lay out a large new estate at Huntsville, Ala., for Miss Eva McCormick, daughter of the head of the American Harvester Co. Mr. Baxter was presented with a handsome gold watch by the men in his employ on the Houghton estate. Mrs. Baxter received a traveling bag and a purse of gold. In addition to filling the superintendency on the Houghton estate, which he laid out, Mr. Baxter filled at the same time positions as chief of police of Dartmouth, chairman of the building committee, chairman of the finance committee, chairman of the Fellowship Group of the Friends' Meeting on Smith's Neck, Scout Master of the Smith's Neck Boy Scout Troop, and Deputy Commissioner of the Boy Scouts of America.

Joseph Winsock recently resigned his position as gardener on the estate of Mrs. W. D. Guthrie, Locust Valley, which position he had held for the last four years.

Walter Harris, formerly of Madison, N. J., has accepted the position of gardener to Mrs. W. A. Roebbling, Trenton, N. J.

James Barnett has been placed in full charge of the Asa G. Candler estate, Atlanta, Ga. Mr. Barnett was formerly in charge of the greenhouse range.

If any reader knows the present whereabouts of George M. Barton, formerly superintendent of Darlington Farms, the McMillen estate at Ramsey, N. J., he will confer a favor by informing the secretary.

MEETING OF BOARD OF DIRECTORS

President Barnett announces that he will call a meeting of the Executive Board, comprising the Trustees and Directors of the association, in New York, during the week of the Tenth International Flower Show in March. Due notice will be sent to the trustees and directors of the exact date and place of meeting as soon as they have been decided on.

CONVENTION NOTES

It is expected that plans will be well under way for the annual convention, which will be held this year at Pittsburgh during the middle of August, when the Western Pennsylvania Branch of the association meets again on the 20th of the month. The chairmen of the various committees will be announced, and it is hoped that the headquarters and meeting place of the convention can also be determined. Members of Pittsburgh, Sewickley, and vicinity, are manifesting keen interest and enthusiasm, and are going to leave nothing undone to make the Pittsburgh convention an event long to be remembered. President Barnett feels very much encouraged over the outlook as he has already received numerous letters from members in different parts of the country, stating their intention of attending, thus assuring a representative body of the association at the next annual meeting.

THE TENTH INTERNATIONAL FLOWER SHOW

Those who have not secured the final schedule of premiums to be awarded at the Tenth International Flower Show can obtain a copy by making application to John Young, Secretary, 43 West 18th St., New York City. Everything indicates that the show will be the most successful as well as the most interesting and instructive of any show yet staged. The Garden Club of America is taking an active part so that the social feature will not be overlooked. It is said that the lay-out of the show this year will be different in character from the past shows. Judging from the entries already received, there will be no lack of interest in the competitive classes. Small exhibits will be as welcome as the large ones, and if you enter only one, you will be doing more than he who fails to enter at all. The show manager, Arthur Herrington, one of our members, should have your support.

LOCAL SOCIETIES

NASSAU CO. HORT. SOCIETY

The monthly meeting of this society was held on January 10 in Pembroke Hall. President James Gladstone occupied the chair. John Hess of Locust Valley and James McManus of Glen Cove were elected to active membership; one petition for active membership was received at the meeting. The dinner committee reported progress, and that the dinner will be held at the Commodore Hotel, Glen Wood, on January 25. The exhibits of the evening were judged by Ben Sutherland, William Carter, and Joe Boehler. President Gladstone presented the Stump and Walter Cup to James McCarthy, for a fine collection of vegetables at the Mum Show. The exhibits for the February meeting will be 50 violets, 6 sprays of stocks, and pot or pan of narcissus.

ARTHUR COOKE, Cor. Secy.

TUXEDO HORT. SOCIETY

The annual meeting of the above society was held on January 3. The following were elected as officers for 1923: President, William Ellings; vice-president, Anton Nelson; treasurer, Duncan MacGregor; secretary, James Davidson. Executive Committee: David MacIntosh, Joseph Tansey, Ezra Wilson, Thomas Lyons, John Livingstone. The annual reports were read, and routine business transacted.

JAMES DAVIDSON, Secy.

TARRYTOWN HORT. SOCIETY

The above society held its 22nd Annual Banquet on the evening of January 9 at the Florence Inn. As usual the weather was rough, but nevertheless sixty-five members and friends came together and a merry time was enjoyed by all. Robert A. Pattison of the Tarrytown National Bank was toastmaster, Daniel J. Cashin, one of the wittiest men in Yonkers, the Rev. W. F. Irwin, Ernest F. Griffin, president of the village of Tarrytown, and Charles D. Millard, supervisor of the town of Greenburgh, were the speakers. Former Senator Charles P. McClelland was unable to be present on account of illness and for the same reason, F. R. Pierson, one of the society's strongest backers, was obliged to be absent for the first time. The Westchester Male Quartet gave several fine selections. They led the gathering in the singing of old and new songs and made the evening a very jolly one. The gathering was welcomed by Thomas Wilson, president of the society, who briefly outlined the work of the society for the past year. T. A. Weston of the Florists' Exchange was the first speaker and in his talk, he said that the Tarrytown shows are second only to those held in New York City, none of the other shows in the country equal them, and certainly none surpass them. Westchester and Fairfield Society was ably represented by William J. Sealey, William Smith, and George W. Strange. After the songs had become exhausted, the party broke up about twelve o'clock, the guests saying that they hoped they never would see the time when they would refuse to accept an invitation from the Tarrytown Hort. Society.

WILLIAM GRAHAM.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The monthly meeting of this society was held at Greenwich on January 9. By the manner of the members and the questions that were brought before the meeting, the year 1923 bids to be a banner year. It was



Ideal 30" mower cuts a 30 inch swath and mows from 6 to 7 acres a day



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ONLY frequent cutting and rolling will produce that smooth, carpet-like effect seen in well-kept lawns. Ideal Power Lawn Mowers do both in one operation at less than one-third the cost when done by hand.

An unskilled man at laborer's wages may be safely trusted to operate the simple, fool-proof mechanism. He will cut from a half to a full acre an hour, trimming the borders closely and rolling the open spaces to velvety smoothness. The moderate cost of maintaining a park-like lawn is obvious.

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Ask your dealer for AXFIXO, if he cannot supply you, write the manufacturers, mentioning your dealer's name.

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Tricker's Water Lilies grow luxuriously and bloom freely from Canada to Mexico, proving their ability to meet all conditions of soil, sun, shade, soil and water.

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features hardy Water Lilies for large estates, tender varieties for tubs and artificial pools, with aquatic plants for borders and screens. Write for a copy.

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very apparent that the die-hards must have been either overwhelmed or absent.

It was decided among the members present that the society should hold a Fall flower show which will be on more elaborate lines, than any previously held in this vicinity.

T. J. Bulpitt's resignation as corresponding secretary was read and received with regret, and Andrew Kneukes was unanimously elected to succeed him.

The society's medals for the highest number of points for exhibits at meetings during 1922 were awarded as follows: For flowers, Wm. Smith, silver medal; H. F. Bulpitt, bronze medal; for vegetables, James Linane, silver medal; H. F. Bulpitt, bronze medal.

Judging by the merits of the exhibits at this meeting for the monthly prizes from the A. N. Pierson and John H. Troy fund, competition will be even more keen than in the past.

Reports for the past year and flower show were received from the secretary, George Hewitt, and treasurer, James Stuart. A rising vote of thanks was given them for their work and the splendid reports made by them, which showed the society to be in good financial standing and very creditable to the officers in charge.

The profits from the September Dahlia Show which was held in the Y. M. C. A., Greenwich, in co-operation with the Greenwich, Rye and Riverside Garden Clubs were distributed as follows: Port Chester United Hospital, \$1,000; Greenwich Hospital, \$1,000.

The annual dinner of this society will be held at the Lawrence Inn, Mamaroneck, on Thursday, February 8th.

A very cordial invitation was extended to the members present from the Stamford Hort. Society for the members and the friends of this society to join them at their entertainment and social gathering in the Agricultural Hall at Stamford, which is the headquarters of the society, on Tuesday, February 6. T. J. BULPITT, Cor. Sec.

ST. LOUIS ASSOCIATION OF GARDENERS

The January meeting of the St. Louis Association of Gardeners was held at the Forest Park Greenhouses January 4th. The meeting was presided by President John



We Are Telling It To You As She Told It To Us

"You recall that advertisement of yours, about having one of your crystal gardens so located that one could look right out the window and see the flowers a bloom in its perpetual summerland, regardless of whether it was December or May?"

Straightway after reading it, I sent for your catalog, and looking through it slowly, leaf by leaf, lingered at the one on Page 27. Turning to the window, I looked out and saw it in my mind's eye, just as it would look.

After which you know what happened.

Looking up from my writing this, the yard is piled with snow drifts and the wind is howling like a hungry wolf, but it is perpetual summer in the bloom filled greenhouses. They are filled with flowers and I am filled with the joy of their possession."

That's what this contentment filled owner of two of our houses recently wrote to us.

Her first move to their possession was to send for a catalog.

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Moritz, and the attendance was large.

Anthony M. Ward, vocational student at the Missouri Botanical Garden, presented an illustrated lecture on "The Use of Explosives in Gardening." Mr. Ward has had considerable experience in this phase of gardening, and his lecture proved to be of particular interest to those present, because few have had very extensive experience along this line of work. He described the use of explosives in detail, touching on the subject of the use of explosives to prepare the soil for the planting of trees, subsoiling, drainage, and the removal of stumps and rocks.

Nearly every one present took part in the discussion which followed the lecture.

L. P. JENSEN, Cor. Sec.

THE CLEVELAND HORT. SOCIETY

The above Society held its regular meeting Jan. 11th. J. M. Stevens, the newly elected president, took the chair. Regular business was transacted; two new members were elected, P. W. Popp, W. E. Marshall Co., New York, and W. E. Attwood, Johnson's Seed Store, Cleveland.

The growing of prepared hyacinths was discussed and how to get them in bloom for Christmas. It seems that the majority of the gardeners could not get them for that time and in course of discussion, it was concluded that bulbs did not arrive early enough in this section.

Carnation rust was next discussed; prevention and cure. As a preventative, spraying with lime and sulphur, 1 to 40, twice during the Summer in the field, was thought by some to be good; the use of fungicide and sulphur preparations in the greenhouse.

Iris Tingitana was another subject. Very few of the members are growing it this year, but the few who are seem to be successful with it.

The state laws on injurious diseases and insect pests, and the examination of nursery stock was brought up for consideration but was laid over for future discussion.

W. J. BRUCE, Secy.

MORRIS CO. (N. J.) GARDENERS' AND FLORISTS' SOCIETY

The twenty-seventh annual dinner of the society was held at the Mansion House, Morristown, on January 17, and, as usual, it was a notable event. The dining room was attractively decorated with roses, carnations, begonias, and other flowering plants. The program included an excellent orchestra, and local talent who rendered popular songs and some witty sketches, ably assisted by Andrew Wilson, who is always a welcome entertainer at local society functions. Charles Weathered served as toastmaster and is known as a past master of that art. Among the principal speakers were Arthur Herrington, who, as president of the New York Florists' Club, responded to a toast to that club, and Charles Totty who spoke as an ex-president of the S. A. F. and O. H. George Masson, representing the Elberon, N. J., Gardeners' Society was also one of the speakers of the evening. Edward Reagan, who retired a year ago and moved to another section of the country, was a welcome guest. As ex-secretary of the society, he spoke of its progress which at times had been through thorny paths, as well as beds of roses.

The entire object of true education is to make people not merely do the right thing, but enjoy the right things; not merely industrious, but to love industry; not merely learned, but to love knowledge; not merely pure but love purity; not merely just, but to hunger and thirst after Justice.—*John Ruskin.*



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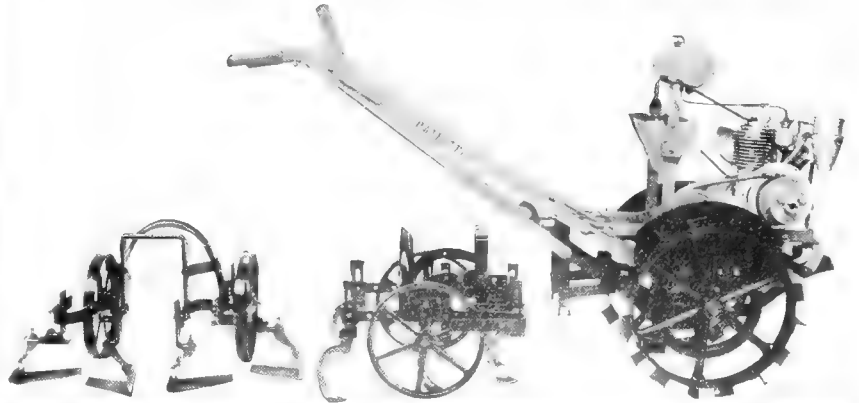
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THE FELLING OF A GIANT REDWOOD

Kenneth Craig

(Seventeen year old son of W. A. Craig.)

Noble monarch of past ages,
Towering proudly towards the sky,
Speak to us—turn over your pages—
That we may learn before you die.

Giant redwood of the Westland,
Mightiest of this wide world's woods,
Man has come—and you must go—
A mere part of his earthly goods.

Tell us first before you leave us,
Unthinking mortals though we be,
Of marvels unfolded before thee,
Wonderful bits of history.

First, of when in bygone ages
Struggling upwards towards the sun,
Fighting always, never resting,
Until at last you won! you won!

When, as but a tender sapling
Shadowed o'er by taller growth,
Of the hardships that you suffered—
Tell us quickly—be not so loath.

You ran your race ever upwards,
Spurned by some and spurning others;
You witnessed pain, and death, and dread,
All the things the blue sky covers.

And as the years rolled ever on,
New things were born—things always new,
Earth itself was torn asunder;
But still you grew, and grew, and grew.

Years when torrents tearing downwards
Ripped the earth from round your base,
Left you hanging, still undaunted—
Conditions changed; you won your race.

Times when waters left you thirsty,
Torturing rays burned down o'erhead;
Withered, parched, but still unflinching,
Until at last your roots were fed.

Days when fire, the red-tongued monster,
Swept the vast woodlands, razing most
To Nature's gasping breast; but you
Were spared—scarred witness of the host.

Then the cold, the biting north winds
Numbed your core, you missed the pace,
But to your rescue, helpless king,
Whispered the south wind in your face.

The rains, the snows, relentless winds,
All fought you, but to no avail;
For still you stand—God's creation—
Towering over hill and dale.

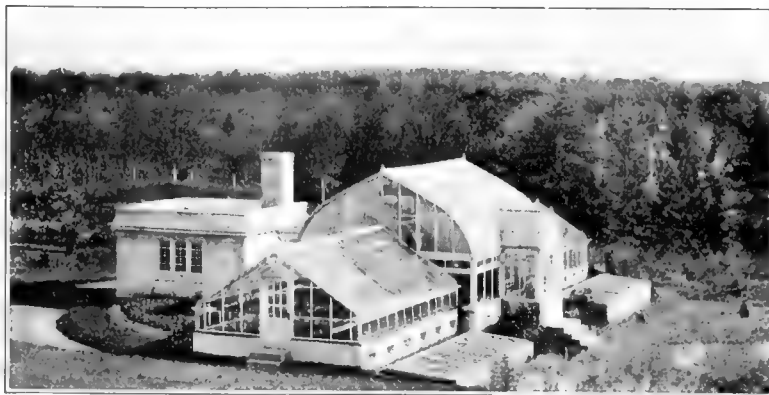
Now you rest, supreme in stature,
Dwarfing others that 'neath you grow,
Waving gently o'er the forest,
While south winds softly sing and sigh.

Well, indeed, you have earned your peace,
But we—vain, lust-ridden mortals—
Think only of our present needs,
So, old tree, open up your portals.

Now the glistering steel cuts deep,
Clear the sounds fall across the mart,
Deeper, deeper bite the axes—
Searching, probing out your heart.

Now you gasp, as with each fresh stroke
Why must you die, O noble tree?
You sway—sweep earthward with a crash!
My God, what fools we mortals be!

But don't grieve, they hump while working—
And then they cooperate! Result,
honey,



About This Particular Greenhouse

IT happens that only yesterday we received from our publishers a rather delightful bit of printing called "Glass Gardens," in which a complete description is given, of an exact duplicate of this particular house.

The view point is a bit different, but the plan is the same.

As companions, are four other houses of simpler design and lesser size.

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GUMMING OF FRUIT-TREES

If it were always possible to trace everything to its source, it would be found that gumming in stone fruits in most cases had its origin in a deficiency of lime in the soil. Other causes doubtless may lead up to it, such as deep planting, or planting in too rich soil. Much injury is done by cropping the borders in which the choicer kinds of stone fruits are planted. The digging and manuring of the ground to meet the wants of the surface crops are sure sooner or later to throw the trees out of gear and bring on many evils, not the least of which is frequently a host of suckers, caused by the spade or fork injuring the roots, or by the manures which are used for the crops growing in the border.

It is well known to most experienced cultivators that Peaches and Apricots do best in firm soil, but if the top spit is under spade culture, the roots must go down to a lower stratum for the firmness they need, and far away from the beneficial influence of solar warmth; the growth comes late and cannot ripen properly, and is more susceptible to insect attacks. It may be thought when a young tree is first planted, that as the roots cannot occupy all the soil the border may at least be used for something until the trees require it. This is plausible reasoning, and so early Peas, Potatoes, Tomatoes, and other crops are planted, the man with the spade goes to work, and the bad system once begun is continued. Again, very few think when planting young trees that it may be necessary in most soils to mix a little old plaster or lime in some other form with the soil but to obtain clean, healthy growth, lime is an absolute necessity. Of course, on a chalk or limestone formation the natural soil contains sufficient lime for the wants of the trees, and those accustomed to note such things can tell by their appearance if the trees are getting their wants attended to.—*Gardening Illustrated*.

To be honest, to be kind—to earn a little and spend a little less; to make, upon the whole, a family happier for his presence; to renounce, when that shall be necessary, and not be embittered; to keep a few friends, but these without capitulation—above all, on the same grim conditions—to keep friends with himself—here is a task for all that a man has of fortitude and delicacy!—*Steven-*

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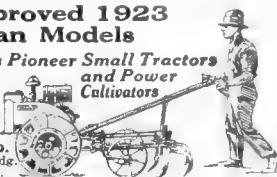
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THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 32)

Having just killed free seeds, will it be necessary next to scotch free bulbs? This is a matter worth serious consideration by the horticultural interests of the United States.

* * * * *

A GARDENERS' CHRONICLE reader wants to know if the writer can recommend the Rose, Gloire de Dijon, as a garden rose. I would say that I have grown it successfully outdoors in New England for over a quarter of a century. This good old rose has been in commerce for seventy years and remains one of the most popular varieties in Europe today. I well remember thirty-five years ago when filling orders for hardy roses, that every customer would insist on having "at least one Glory" put in the bundle. Although a tea, it wintered successfully with the same protection given other roses in Brookline, Mass. and flowered very persistently. A gentleman in Hingham, on the south shore of Massachusetts, classes it as one of his finest climbers and it covers a good portion of the front of his house. Abroad it is grown as a dwarf, standard, and climber; here it is best treated as a climber and laid down in Winter. I feel sure that many amateurs as well as professionals would do well with this grand old rose. The color is buff with an orange, yellow centre and the flower is large, full, and fragrant. Many firms offer it,—why not try it?

* * * * *

Vermont has long been noted as a state whose dairy products, turkeys, and maple syrup are of the highest quality. We all know the Green Mountain State as a delightful spot in Summer, and Winter sports have given it still further éclat. It may occasion surprise to some to

learn that the apple industry in this cold New England state bids fair to out-do the maple sugar industry in importance. At Bennington, Vt., there is now one orchard covering no less than three thousand acres with fifty-five thousand apple trees, and twenty thousand more of pears, plums, quinces and cherries. The most up to date scientific methods are used here and commencing in 1923, it is hoped to send out a train load of apples daily during the height of the apple season from this and some other Bennington orchards. Baldwin, Rhode Island Greening, and McIntosh Red are the leading apples, the red colored sorts being grown in much the greatest quantities.

* * * * *

The question is occasionally raised, what is the most popular rose in the world today? I would unhesitatingly plump for the Gloire de Dijon. Introduced by Jacotot of Dijon, France, as long ago as 1850, no other rose has attained such a widespread popularity. It is equally good abroad as a bush, standard, climber, pergola, for pegging down or for walls. It has buff or salmon colored flowers, and is very fragrant. Here in Massachusetts it will withstand 15 to 20 degrees below zero, and on the South Shore, it proves to be one of the finest climbers. This grand old rose is worthy of increased culture. Unlike our regular ramblers, Gloire de Dijon is a perpetual bloomer and has a fragrance peculiar to the teas, lacking in most of our ramblers. It is interesting to recall some of the earliest French introductions among roses; between 1840 and 1853 there were sent out such splendid sorts as Cloth of Gold, 1843; Prevost, 1842; Blairii, 1845; Celine Forester, 1840; Geant de Batailles, 1846; General Jacqueminot, 1852; Jules Margotten, 1853; and Gloire de Dijon, 1850. About all these roses are still in culture, surely a tribute to their worth.

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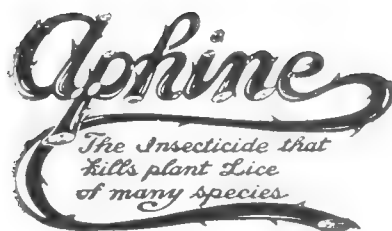
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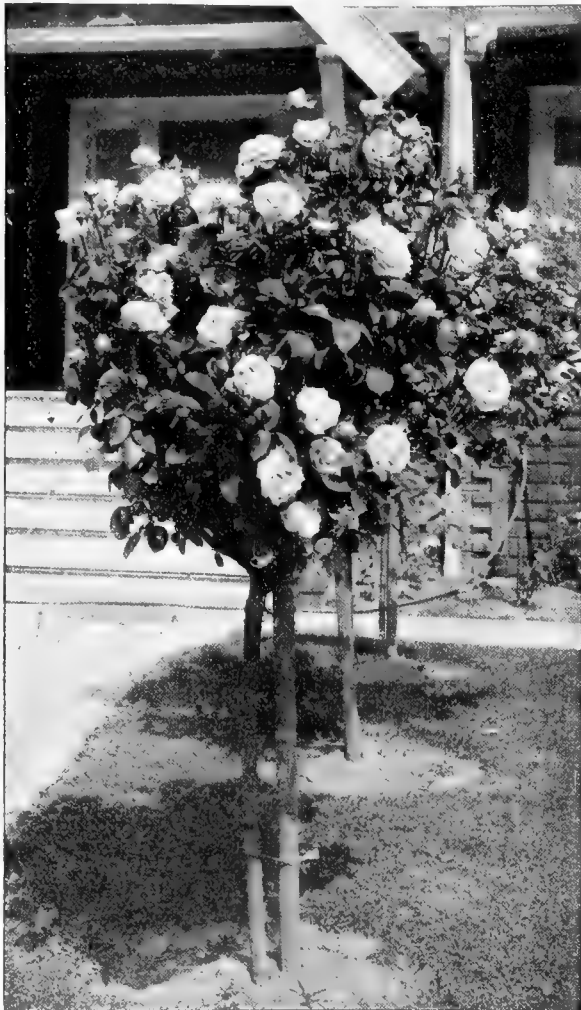
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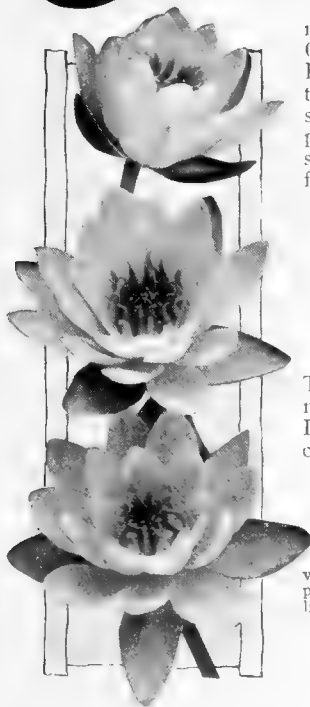
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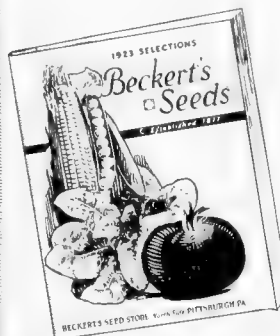
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

MARCH, 1923

No. 3

Things and Thoughts of the Garden

WILLIAM N. CRAIG

IT is pleasing to note the increased interest in rock gardening in America. For years this form of gardening has been very popular in Europe and in Great Britain. No garden is really complete without its rockery; these are now often of considerable size, as for instance, the one at Friar Park, Henley-on-Thames. The rock garden at Kew attracts hundreds of thousands of visitors annually, and contains an enormous number of species. Very notable also is the one at the Edinburgh Botanical Gardens, many plants thrive better there than at Kew on account of the more northern latitude. At the Chelsea Holland House, and other noted shows, the exhibits of rock gardens are always one of the great features outdoors, and at earlier shows in the Royal Horticultural Society's Hall in Vincent Square, London, displays of rock and alpine subjects are numerous and interesting.

In America on account of the hot Summers, rock gardening may never attain so wide a popularity as abroad, but a marked increase in the culture of these plants is developing each year. Gardens such as Montague Free has constructed at the Brooklyn Botanic Gardens, are fine examples of how such gardens may be laid out. In Massachusetts there are fine examples on the Thomas E. Proctor estate at Topsfield, where James Marlborough has charge. Many members of the National Association of Gardeners had the privilege of seeing this garden on the occasion of one of the outings during last Fall's Boston convention. Rare and unique plants are to be found in this garden; the rocks are massive and well placed, and the rockery follows the shores of a small lake. Another notable rock garden in Massachusetts is on the Weld estate, Dedham. The layout here is a most natural one with a rocky stream, pools of water, steep winding paths and a veritable wealth of choice plants well acclimated and planted naturally. There is considerable shade from large trees here, which is an advantage for many shade loving subjects, but others enjoying more sunny exposures are inclined to damp off from the constant drip. The lilies, gentians, primulas, trilliums, and many other plants are wonderfully fine. The majority of rock plants prefer an open sunny exposure, but primulas, polyanthus, trilliums, erythroniums, and not a few others are most at home in at least partial shade.

be of irregular shape. The stones used should, if possible, be old and weather beaten; the rougher and more rustic they are in appearance, the better. Soil should be porous to allow of good drainage for nearly all varieties. Formality should be avoided as much as possible. There are many plants which can be raised from seeds for use in the rockery, and a considerable variety of the more easily grown can be purchased at very moderate prices. Those who want "immediate effects" should start with such flowers as phlox subulata and divaricata, Alyssum saxatile compactum, single and double arabis, cerastiums, saxifragas, viola cornuta, campanulas, rotundifolia, and carpatia, various dianthus, arenarias, silenes, armerias, such iris as cristata and pumila, sedums, sempervivums, primulas, hepaticas, trilliums, blood roots, sweet scented violets such bulbs as snowdrops, chionodoxa, scillas, small varieties of narcissi, some of the species of tulips, and, of course, small cedars, spruces, and other evergreens. To relieve the flatness an occasional yucca filamentosa, foxglove or verbascum can be used. The amount of material available is great; there are numerous good plants not mentioned here at all.

* * *

The rock garden gives pleasure long before a formal garden can do so, for just as soon as snow passes, we can find snowdrops and other bulbous subjects, the Christmas rose (*Helleborus niger*) *Draba aizoon*, hepaticas, violets, primulas like *dentisulata* and *vulgaris*, saxifragas like *cordifolia*, arabis and other plants in flower. Until June there will be a constant succession of interesting flowers. During Summer we do not look for a floral display. While it is true that annuals are often planted in to continue the show of flowers, they have no place, however, in a true rock garden as they simply smother out the hardy subjects. Such plants as *myosotis*, double daisies, and bedding violas are permissible if planted where they will not encroach on other plants, but even these should really be omitted. The idea is to trust to hardy subjects only, and pockets of these can be planted out in Spring or late Summer. It is better not to do any very late Fall planting in the rock garden; bulbs, of course, are an exception.

* * *

The statice are coming into increasing favor in America; I am referring more particularly to the annual varieties. The well known hardy *S. latifolia* has long been a valued plant for the perennial border or rockery. The varieties *Bonduelli* and *Sinuata* are most useful

annuals and of easy culture in the open. Great quantities of dried flowers of these everlasting are annually imported by dealers in florists' sundries, and are used in artificial wreath making. The variety Suworowi makes a lovely pot plant and may be flowered from December until June. The stalks are very much branched, and the tail-like and twisted rosy red panicles which are densely crowded with small flowers are most attractive. By carefully selecting the seeds, it is possible to get a strain which make ideal pot plants, looking in the distance like densely flowered and glorified ericas. The way to secure a quantity of flowers for cutting in the Winter is by planting raised benches about eight or nine inches apart each way and by growing in a cool house. I saw two splendid benches on a private estate in Jamaica Plain, Mass., on March first which bore a perfect thicket of spikes and had been blooming since before Christmas. Arranged with *Jasminum primulinum*, yellow jonquils, and other yellow or white flowers, *S. Suworowi* is very effective. This variety comes from western Turkestan and is worthy of increased culture on private estates.

* * *

A rose which has jumped very much into favor the last two seasons is Paul's Scarlet Climber, undoubtedly the finest of all our scarlet pillar roses. It was raised by William Paul & Sons in England and introduced in 1916. It is a fine rose either for the garden or for pot culture. To succeed with it best for forcing, it should be pot grown through the Summer; then plants will carry four to twelve of the largest brilliant red flowers to a truss, almost rivaling Hadley in size. If field grown and potted, the number of flowers to a truss is disappointingly small. To anyone who wants a first class scarlet rose, which holds its color and does not fade out to a sickly magenta shade, I heartily commend Paul's Scarlet Climber. Juliet, the glorious *Pernetiana* from the same firm, is one we cannot afford to overlook.

* * *

There are general complaints from those who are growing early tulips this year, both for forcing and outdoor culture, of the inferiority of the flowers produced. An unusual number when forced, come blind, which is sometimes due to too early forcing, using bulbs not properly cured, and improper treatment as a whole. But this year both amateurs and florists are having poor results all round, and I wonder whether the Dutchmen are not becoming careless with their early tulips, and lavishing all their attention on the Darwins, Breeders, and Cottage varieties. The latter varieties are as fine as ever and each year are pushing the early types more and more to the wall. Certainly if forced bulbs do as poorly another season, and bedding ones look none too well, growers will be justified in gradually dropping the early section altogether. The late varieties are so much finer in pans for forcing and in the garden, that the wonder is that so many private estates, parks, and cemeteries persist in planting so many early varieties.

* * *

Among small fruits, raspberries are deservedly popular, and some very fine varieties of these have been introduced in late years; the red varieties have the best flavor. For many years Cuthbert was the leader in this section and is still grown very heavily; several other sorts have been planted extensively in recent years and are gradually displacing the one-time leader. Herbert is a favorite with many, although it is lacking in flavor. It is of Canadian origin and is said to have wintered eleven hundred miles north of Boston where minimums of as low as 59° below zero have been recorded, and as many as three hundred nineteen bushels of fruit to an acre have

been picked from it. As raspberries are found in a native state in the Klondyke sections of Alaska, as well as near the great glacier fields, it should be possible to produce raspberries which will stand a very low temperature. Of course, in the more northerly latitudes, the deeper snows make ideal Winter protection.

Minnesota is another very hardy variety which does well in New England and St. Regis which originated on the sandy lands of southern New Jersey has attained considerable popularity; the new canes on this variety fruit freely in the Fall. La France produces a large, handsome berry and gives a heavy Autumn crop; it suckers abundantly and can thus be very rapidly increased. Erskine Park which hails from the Berkshire Hills of Massachusetts is considered by the U. S. Department of Agriculture to be the best of all late red varieties. This by no means exhausts the list of red raspberries. Golden Queen still fills the whole field of the yellow, and Columbian remains supreme among the dark purple varieties.

* * *

Liliums are one of our most important bulbs for forcing. Our importations last year from Japan totaled some seven millions. We also imported some from Bermuda, Holland and France. From the latter country come our candidums which get smaller, poorer, and more costly each year. Some fifteen years ago it was easily possible to get the stalks carrying thirteen to fifteen flowers each; today ten is a high number and a great proportion throw only five to eight. As candidums do remarkably well in some of our southern states, it should be quite possible to produce bulbs equal to or superior to the French; in fact, in southern New Jersey and on Cape Cod, Massachusetts, I believe bulbs can be produced as fine as any we now are importing from France. Years ago Bermuda produced our finest Easter lilies and Harris's grown there were of remarkable quality. Disease and careless sorting of bulbs disgusted growers in America, and for years the Bermuda industry lay under a dark cloud. An expert sent from Great Britain has gradually eliminated disease, and the best lilies I have seen this season in New England came from Bermuda bulbs. If they can give us as good bulbs of *longiflorum giganteum*, we would readily dispense with the large and costly shipments from Japan.

That we can produce good Easter lilies in America is beginning to be recognized. Some of the cleanest I ever grew came from Orlando, Florida. A batch from New Orleans, seen a few days ago, were equal to any which came from Japan, and Texas can also grow good lily bulbs. The increasing cost of bulbs from abroad would appear to open up a new field of profit for some lily propagators here. With the threatened debarment of all bulbs in the near future, lilies included, owing to the terrible dangers from insects and diseases, as yet unknown, which may devastate our forests, fields, and gardens, we may have to submit, if the present autocratic F. H. B. continues to function, so we may as well prepare to produce some lilies here at home as best we can.

UNFOLDING LEAFAGE

Leaves that are unfolding have a charming daintiness in color and plaitings. They exemplify that brave fragility that makes childhood so appealing. A collection of just-opened leaves will make a rare study in design. The willow, a very light, thin, green, tinged with red and woolly-white underneath; birches yellow-green with a warm furry coating of white and fluted like tiny half-opened fans; poplars living green and fragrant with balsam; downy mouse-ear elms, showing every crease and fold made by their swaddling clothes.—*C. S. Monitor*.

The Gourd, the Most Attractive Annual Climbing Vine

DR. E. BADE

OF all the annual climbing vines, the gourds are the most attractive. They are able to cover large surfaces during the Summer, especially when they are placed in a good fertile soil. These quick growing plants which require absolutely no care, should be sown in May. The spot chosen for their growth should be sunny, for

are sown on sunny beds in the month of May. Only the fruit of these plants is beautiful, since, when ripe, they open and show their bright red meat in which the seeds are imbedded. Only at this time are these plants attractive.

But the true gourds are a thing of beauty at all times.



"Nestegg" and flower



Dishcloth (Luffa)

light, heat, and moisture spurs them on to develop in all their luxuriance. Their large beautiful flowers are open from twilight until about 9 o'clock in the morning and are also open on cloudy and cool days. The flowers of the bottle-shaped gourd and of Luffa are snow white, those of the other gourds are yellowish; they are somewhat similar, but much larger, than those of the cucumber.

Two interesting relatives of the gourds are *Ecballium elaterium*, and *Momordia balsamina*. The former is an inhabitant of southern Europe, where it is a common weed. This plant is peculiar in its fruit, which is about

Their quick growth and the profusion of flowers make them doubly attractive. The male flowers make their appearance first. During July the female flowers begin to open and which, after insect fertilization, soon develop into fruit. The profusion and variety of the fruits may be traced back to degenerate forms. Many of their characteristics are, indeed, peculiar. In form they may resemble apples, pears, eggs, melons, oranges, bottles, or clubs, among which the rarer wart-gourd must not be forgotten. The color ranges anywhere from a pure white to a deep orange or from a bright yellow to a dark green.



Dipper (Lagenaria)



"Hercules-Club"

as long and as thick as the thumb. It falls from the vine at the touch, and, at the same time, the liquid within, which is kept under high pressure, is squirted out violently, together with the seeds. When cultivated, the seeds should be sown in the open in the month of April.

Momordia balsamina and similar cucumber-like gourds (*M. charantia*) whose leaves are heart-shaped and entire,

The rind may be smooth, fluted, or warted, and have two or more colors so arranged as to give a picturesque effect.

Beautiful ornamental knick-knacks can be made from the fruit with little labor. The gourd, when ripe, has a wood-like rind which is hard and capable of withstanding quite some pressure. First an opening must be made large

(Continued on page 68)

The Calanthe

GEORGE W. MYLES LYDDIARD

THE first hybrid was raised by Mr. Dominy of Veitch's Nursery, between *C. musaca* and *C. furecata* in 1854 and bloomed two years later—this shows us what hybridization will sometimes do, as *C. musaca* is a shy bloomer, whereas the hybrid is a free bloomer.

There are about forty species of *Calanthe*, chiefly natives of Asia and a few being American, both evergreen and deciduous varieties. My remarks will deal chiefly with the deciduous variety and their successful cultivation.

One of the oldest varieties is the *C. Vestita* being introduced about 1848 by Veitch's of Chelsea. This and its sub-varieties has an apple-shaped pseudo bulb and bears a flower stem (when well grown about two inches across) and from one to three feet long—flowers white with yellow throat and blooms about November. There are several named varieties of this type, some of the best being: *Gigantea*—strong grower and usually retains its foliage till the new growth starts and flowers from November to March; *nivalis*—flowers pure white; *porphyrea*—flower spike compact, tinted all over with rose and differing in form from the preceding types; *rubro oculata*—flowers large with crimson instead of yellow blotch in throat and *Turneri*—flowers more compact on the spike and smaller, throat blotched with rosy red.

Personally my prime favorite of all the deciduous *Calanthes* is *Veitchii*, and its various sub-varieties, these can easily be identified by their long bulbs indented in the middle and their large plaited light green leaves. The flower spikes when well grown reach three feet in length and bear an abundance of bloom, which are similar to those of the *Vestita* family but shorter in the lip. They are bright rose color with a white throat and bloom from early Winter till the turn of the year. Three of the best varieties of this type being: *Bella*, very bright pink flowers; *Sandhurstiana* has deep crimson flowers, and *Sedenii* which has deep rose colored flowers, darker altogether than *Veitchii*.

The preceding varieties I have especially mentioned as they are old, true and reliable. There has been of late years quite a number of very pretty and useful novelties introduced, a number of which I have not had the opportunity of handling. The following, however, I can vouch for: *Baron Schroeder* variety; *albescens*, one of the strongest growers; *Byran*, *Chapmanii* (*Ruby* × *Veitchii*), 1906; *Harrisii*, flowers white, flushed pink; *Mrs. C. Vanderbilt*, *Darblyana* (*Regnieri* × *Vestita*); *C. Ruby* (*Sedenie* × *Vestita*); *W. Murray*, *Victoria Regina* (*Rosea* × *Veitchii*).

All the deciduous varieties of *Calanthes* require the same treatment. This is the usual course of cultivation I follow, and I have been successful in growing some quite good and useful patches of this most useful class of Winter flowering orchids. As soon as the plants have finished blooming, I separate the new bulb from the old, placing the former into four-inch pots with coarse sand only, which is kept just moist in a temperature of about 60° to induce a steady and robust growth or growths. As soon as the new growths are about four inches long they are potted into five- and six-inch pots, according to the size and strength of the bulbs, and placed in strong heat and never allowed to go back. They are given as soon as potted one thorough watering to settle the potting compost thoroughly round each bulb. The smallest bulbs are potted into eight- and ten-inch pans, five to six in each, care being taken to plant all the bulbs in the center of the

pan with the growths outward to insure the plants as much freedom as possible to develop their new bulbs. These pans will be found, when in flower, very useful indeed from a decorative point of view. The plants at this stage require more than ordinary attention for a few weeks till they establish themselves. Great discretion should be used in the matter of watering and ventilation as the grower must bear in mind that they thrive best in strong heat and an abundance of atmospheric moisture at all times, till they have finished their growth towards the end of September.

These plants love light, but will not stand the direct rays of the Summer sun. Give a light shading to protect them during bright weather, but on no account use a heavy or permanent shading, as very often this is how plants are spoiled and their foliage badly rusted; also never crowd your plants. If you have space to grow a dozen plants well, do so but don't try to grow two dozen and spoil the whole batch. How often one sees this sort of thing, even in some well appointed gardens, trying to grow more than there is really space for, and getting some very ordinary results.

I always endeavor to keep my plants as near the glass as possible without touching it, and allow them plenty of room for light and air to get around the plants.

About July when the bulbs begin to swell is the time to start to feed them. Being terrestrial plants they require quite a lot of careful feeding to help bring them to perfection, and experience has taught me that *Calanthes* love a change of feeding from time to time. I usually start feeding with manure water from cowdung and soot in a weak state about twice a week, gradually using it stronger as the bulbs develop, as you would for mums. I vary it to some standard chemical manure, such as Clay's, Thompson's, etc.

When September arrives some of the varieties show signs of finishing their season's growth by their baby leaves changing color. Water in both liquid and atmospheric form should be gradually diminished as time goes on, but on no account must all moisture be withheld till the plants have finished growing.

I have often seen quite good batches of plants ruined by the grower drying the plants off too suddenly. This is as detrimental to them as over watching them at this stage. As soon as the flowers begin to open the plants should be moved into a dryer house with a night temperature of about 60°. By doing this your flowers will gain substance and color and last in bloom much longer.

The compost I use is three parts good turfy loam, one part peat, both hand picked and sifted to reduce the soil from the loam in a quarter-inch sieve, and one part well rotted cow manure rubbed through one half-inch sieve. See that manure is not too wet or on the other hand too dry, for if it is, it means hard work to get through sieve and does not mix so evenly with the loam and peat. Mix thoroughly and to each two bushels add a four-inch pot of soot, one six-inch pot of charcoal broken to the size of peas, and one four-inch pot of bone meal with a liberal sprinkling of sand (coarse, not fine).

The bulbs should be potted barely an inch deep in the compost, making it fairly and evenly firm, not hard on any account. Great care should be taken not to make the compost too firm on the side of the bulb from which comes the growth and the tender fleshy roots.

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What the Home Garden Should Be

THOMAS W. HEAD

WERE I talking to each one individually my first question would be, "What kind of a garden have you?" I am sure that each could tell me something in reply that would interest and instruct. It is not alone the extent under cultivation that measures the attractiveness and value of one's garden. No matter how small it may be if it is well done, tidy and fertile, above all showing a well defined purpose and well carried out. A garden without individuality misses much of its charm. Why should there not be as many types of gardening as there are types of people? Nature never repeats herself, and he is a poor gardener indeed who is unable to give distinctive character to the domain under his care, whether it is his own little dooryard plot or a vast estate of many acres. He who aims at nothing better than simply to lay out his home grounds in whatever may be the prevailing style, selecting his material and its arrangement with no higher motive than to imitate what some one else has done, is surely entitled to our pity.

Lord Bacon once said, "A man shall ever see that when ages grow into civilization and elegance, men come to build stately sooner than to garden finely." So we find in this country of ours, in these communities longest settled, the greatest advance made in gardening art and the people more ready to divert their attention from commercial engrossment to a consideration of beautifying their home environments. We see the people more readily inclined than some in the younger sections of our country, to forsake the crude and grotesque plantings of imitations of animals, birds and so forth and substitute the more natural, rational and artistic arrangement and more pleasing variety in the adornment of our parks and residential grounds. There were a few who were carried away with the ribbon bed craze, for a time, but we learn by our mistakes and I think we can safely promise, with hand uplifted, that we will never commit that offense again.

But let us watch out that we do not allow ourselves to go to as absurd lengths in other directions. There is a suggestion of sameness in many of the shrubbery plantings now becoming so popular that it is as tiresome and meaningless as it is unnecessary with the almost endless variety of material at our disposal. If we are to make positive progress in our gardening and not simply revolve in cycles we must avoid crazes and fads. Our resources are boundless and no single style of gardening can lay claim to unquestioned superiority under any and all considerations. Individuality is a possibility and should be striven for. We have all seen streets where the houses were identical in every respect, one with the other, size, architecture, color, surroundings, so that it would seem that an occupant must needs look carefully at the door number before venturing into his home.

The ready-made effect leaves an unfavorable impression and the monotony wearies us. By all means let us do all we can to prevent such a condition in our garden scenery. Tiresome repetition is as much to be deplored in belts of dogwood, hydrangeas and berberis, as it was in the now discarded gardening of 25 years ago when everybody felt obliged to mutilate the green lawn with a scroll of red coleus or geraniums edged with dusty miller or such.

As to the laying out of a garden, as before remarked, I believe in individuality, but governed of course by correct artistic perception, something which we all have in greater or less degree, and which by observation and experiment we may cultivate to a high plane, and so by a general knowledge of the requirements and possibilities

of plants, shrubs and trees at our disposal. I would call attention to a few other features that seem indispensable in the arrangement of an enjoyable home garden. First, I want some seclusion, either actual or suggested. I object to being one of a number of residents in a continuous park. I would not be understood to advocate returning to the old style of fence division, each bit of fence of a different model, height and color from its neighbor, but when park-like effect in the aspect of our suburban homes is secured at the expense of the home idea, it costs too much. It is possible to indicate the spot where our garden ends and our neighbor's garden begins, to mark the division between our domestic Eden and the public road and to ensure a welcome privacy, without necessarily interposing a high hedge or a forbidding stone wall. Tidiness, you will all agree, is an indispensable requisite in the home grounds. To maintain this in its fullest sense, there is plenty to be done besides keeping the lawn close clipped, the weeds dug out and the litter picked up. The memory of the old decrepit lilacs, honeysuckles and Rose of Sharon in some of the ancient gardens when I was a boy still haunt me and I can see the greatest menace to the popularity of the flowering shrubs in the future in a repetition of this neglect which was so largely responsible for their temporary banishment from public favor. However picturesque an old gnarled oak or cedar may be, a gnarled lilac has no claim on my admiration. Constant attention is the price we must pay for an attractive, healthy shrubbery plantation. Where trees or shrubs have grown so that they are about to interfere with their best development, thin them out at once before the harm is done, taking away the least desirable. When a specimen shows indication of infirmity, throw it out and substitute a youthful one. To do this requires courage. We will learn after a few such experiences to sympathize with and pity the man in charge of public grounds, who, in the proper carrying out of the duties for which he is paid, has to face unreasoning and spiteful criticism on all sides from people who go frantic over the unavoidable trimming and thinning out of half suffocated saplings in an overgrown wilderness but yet look on with indifference or even approval when a noble elm that has seen the centuries come and go is ruthlessly destroyed to make way for a trolley line.

Our subject is an endless one. The need of wise discretion in the intermingling of native and foreign subjects, the uses of evergreens, of climbing plants on the house, of hardy perennials, of bedding plants, and annuals in association with shrubbery borders, the securing of a steady succession of bloom when selecting material, the maintaining of a proper equilibrium between wildness and artificiality, questions of color, composition, sun and shade and the obligations which civilization imposes upon us to see that our gardens and fields are not breeding places for noxious weeds, insects, pests, these and an infinity of other things suggest themselves to one when he begins to think about his garden work, but space will not permit me to dwell on them further.

The garden is our most natural abode. We are told that our first parents had a garden for their home but that their first sin caused their expulsion from the beautiful place. What a tribute, this, from the Almighty to the garden. Is it strange that ever since, when man has sought to find perfect happiness, he has surrounded himself with gardens, or that flowers and gardens have been a

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Disappearing Species

WILLARD N. CLUTE

HOWEVER much eminent lecturers and Southern politicians may disagree with the evolutionists as to how the plants and animals came upon the earth, they are not likely to differ much over the statement that many species are gradually disappearing. The evidence is all too conclusive. In very recent times we have seen the passenger pigeon, and the quagga, the sea-cow, great auk, exterminated and the buffalo, whale, prairie-hen and many kinds of birds brought to the verge of extinction. That a large number of others are also on the way out can scarcely be doubted. As regards the cases mentioned, it may be objected that these are not due to natural causes but are mainly due to the activities of man. Granting this, the proposition is still the reaction of one species upon another. The results in the end are the same, whether the struggle is between plant and animal, between plant and plant, or between the animals and that most destructive animal of them all—man.

It is likely that a thousand small adjustments are constantly taking place in fitting plants and animals more exactly to their surroundings. It is only when the adjustments are too slow to preserve the life of the species, or when they are more rapid than usual, that we notice them. In the case of the passenger pigeon, extermination was unusually rapid. It occurred in the span of a single lifetime. The death of the chestnut trees has been still more rapid. Twenty years ago, our eastern mountains contained numerous magnificent forests of chestnut. Now the tree is practically extinct; killed by a microscopic enemy in spite of the best efforts of man to protect it.

The fossil record is chiefly a record of species that no longer inhabit the earth; of unsuccessful species that failed to keep up with the changes in their surroundings. The plants that formed the coal measures are not represented on the earth today. Indeed, the existence of fossil palms in Greenland and the occurrence of coal beds in regions now covered with snow and ice show very conclusively that great changes must have taken place since the coal plants flourished. In other regions we may find species that have not entirely disappeared, but whose restricted ranges show how greatly their race has declined. The magnolias of our Southern States and Eastern Asia were once common in Europe as shown by their fossil remains, but they do not grow there now. The redwoods now found only along our Pacific Slope were once spread entirely around the earth in the north temperate zone.

When we ask what brought these species low there is no definite answer. Perhaps it was a change in climate, perhaps too great a difference in temperature, or moisture, or some other condition of which we are ignorant at present.

Probably few of us realize how very dependent even man himself is on the conditions of his environment. Any one of a dozen slight changes that might take place in the earth's atmosphere would instantly wipe him out of existence. A succession of years too cold for the growing of food crops would force him toward the equator just as an increase of warmth would induce him to move nearer the poles. The remains of once populous cities in the deserts of Asia and the abandoned cliff-ruins so widely scattered in our arid Southwest point mutely to the fact that moisture con-

ditions on the earth have changed greatly since man made his appearance. That he could not stand against some of these changes is shown by the successive waves of migration that have flowed into Europe from the south-east, driven out by the increasing dessication of the region.

What man has done to exterminate various species is not worth mentioning in comparison with Nature's efforts in the same line. The broad sea that once rolled from the Gulf of Mexico to the Arctic ocean contained many species that disappeared with its subsidence. At the same time a vast region was thrown open to such land animals and plants as could migrate into it and alter their requirements sufficiently to retain their place in it. Changes of similar kind have happened again and again over the earth; indeed, they have not yet ceased to happen. When the changes have been small, or have taken place very gradually, plants and animals have probably changed fast enough to keep pace with them. But when the changes have happened to be rapid, many species have doubtless gone down to defeat, unable to maintain life in a greatly changed environment.

Nor is the life of a species entirely bound up with its inorganic or physical environment. Often the dependence of one species on another, or their mutual reactions may result in the decline and death of one or both. A plant species may disappear for want of the proper pollinating insect, or because of the presence of some leaf-eating insect or other animal. Or it may, as in the case of the chestnut, be attacked by some disease that it is unable to survive. Still further, the absence of the pollinating insect may be due to the destruction of some very different plant upon which the larval insects feed and this in turn may be due to the drying up of some distant swamp, or the flooding of some valley in which the plant grew. Plants that are incapable of self-pollination may have their very existence threatened in this way.

Of all the agencies that threaten the existence of plants and animals today, man seems to be the most important. By lumbering, burning, draining, flooding, filling, excavating and cultivating he has greatly changed the face of Nature and rendered many localities entirely unfitted to support the species that formerly inhabited them. But these very changes have made new and fertile fields for still other species that could not get a foothold so long as the original tenants were not disturbed. Moreover, the cultivated crops that man prizes often harbor insects or diseases that spread to the wild forms, while occasionally the tables are turned and the wild things provide diseases that inflict great mortality on the cultivated crops. As a matter of fact, some innocent appearing plant may harbor an organism very destructive to a very different species.

The total result of these interactions of species with species and of species with climate and the changes in the surface of the earth must be a series of changes in form and structure which preserves the successful forms from extinction. Thus have the plants been modified to fit their environment. Thus have resulted new forms which in time may have become distinct species. To doubt it is to doubt the evidence of our senses. And this is evolution.

Armeria—Lychnis

RICHARD ROTHE

ARMERIA, a genus of the order Plumbagineae, commonly called Sea-pink or Thrift, consists of a number of useful rock garden inmates of long standing. The nomenclature of species in standard works is in a chaotic state and as many of the species merely differ under the microscope of the botanist our interest is best limited to the few distinct forms we are familiar with.



Armeria maritima splendens

Armeria cephalotes, valuable on account of its late flowering, may be found listed as *A. formosa*, *latifolia*, *mauretanica* and *pseudo-armeria*. The round headed blossoms of the true *cephalotes* appear in early Autumn and are of a deep rosy crimson. The species *Armeria plantaginea*, going also under the names *leucantha* and *scorzoneraefolia*, is at its best during June and July. Its blossoms are rosy red and those of the variety *alba* are white.

Best known to most of us is the common *Armeria vulgaris*, growing wild along the coast lines of Great Britain and also abounding on rather dry open sunny plains of Central Europe. Its synonyms are *A. elongata*, *maritima* and *Statices Armeria*. The garden forms of it listed in American catalogues under *Armeria maritima splendens*, *splendens alba* and *Laucheana*, remain the most desirable for American rockeries. The flower heads of *maritima splendens*, the subject of our illustration, appear in rosy pink or in white, while those of *Laucheana* are of a bright pink color. Their very resistant tufted foliage covering the ground densely and their decidedly handsome blossoms borne on thin wiry stems make the cultivated thrifts an ideal material for filling the pockets of the sunny locations of rockeries and dry walls. They also prove effective when employed for edging of borders in herbaceous gardens.

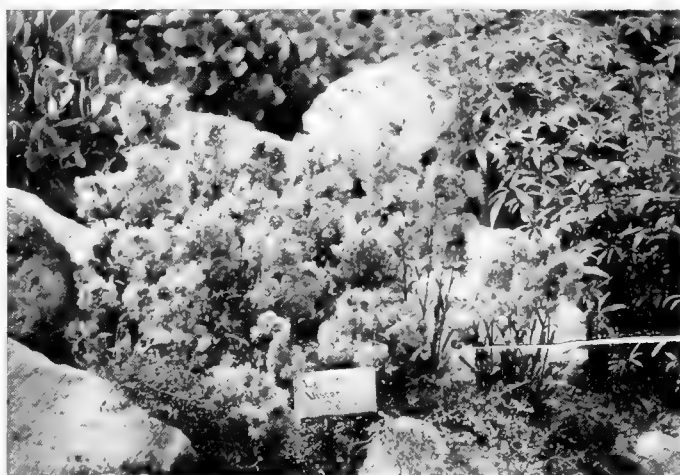
Armerias may be raised from seed sown in cold storage early in Spring or propagated by divisions. Seedlings flower the second year. Plantations should be made in light sandy soil rich in humus. Do not forget a light leaf covering for Winter protection.

LYCHNIS

The name *Lychnis*, derived from the Greek *Lychnos*, the lamp, refers to one of the chief characteristics of this hardy plant genus; that is, the strong fiery red of the flowers of its foremost species. Indeed the intensity of the red of *Lychnis chalcedonica*, *L. fulgens* and *L. Haageana* is rarely eclipsed by any other garden flower. The prevailing tendency among many garden owners to keep red out of their color schemes is no doubt in part the reason for their frequent omission in modern gardens.

Few perennials can be as easily raised and propagated as *lychnis*. Early Spring seedlings flower profusely the first season. All species are extraordinarily hardy, requiring only a minimum of care.

Lychnis at present remains the perennial of the beginner with a small purse undisturbed yet by color riots. It is the perennial of rural housewives and it claims its undisputable space in every old-fashioned garden worthy of the name. But as soon as we take up the cultivation of the white-flowering varieties such as *L. chalcedonica alba plena*, *L. vespertina*, *L. flos-cuculi alba plena* and above all *L. viscaria alba grandiflora plena* then we begin



Lychnis viscaria splendens

to realize the existence of beautiful forms well worth their space in modern gardens. The flowers of the last variety mentioned represent a fine material for filling vases. Color harmony supreme or of little concern, I believe we cannot afford to omit the *Lychnis*. The rich and glowing magenta red of *L. viscaria splendens fl. pl.* may be an impossibility in many modern color schemes, nevertheless its dazzling strength will always appeal to us so forcefully that we can never lose sight of it. At present the rock-garden offers the best opportunity to use it to full advantage. Within its precincts we may also enjoy the low dense cushion-like growth of *Lychnis alpina*, covered with legions of little rosy-red blossoms and the two less known species *L. pyrenaica* and *L. yunanensis*.

My impression is that the genus *Lychnis* of late has been somewhat neglected. In taking up the cultivation of the best species and varieties we are apt to increase our cash returns and, in availing ourselves of the opportunities for effective garden use, we doubtless will add to the beauty of our home grounds. I particularly wish to call attention to the quick and easy raising of the single-flowering species from seed.

Kind hearts are the gardens,
Kind thoughts are the roots,
Kind words are the blossoms,
Kind deeds are the fruits.

Do not look for wrong and evil,
You will find them if you do;
As you measure for your neighbor,
He will measure back to you.—Alice Cary.

Rambling Talks on Plants

FLORUM AMATOR

EPIGÆA REPENS, Trailing Arbutus, is by no means our earliest Spring flower, but it is one of the sweetest and prettiest. The flowers of *Symlocarpus foetidus*, the Skunk Cabbage, appears weeks before those of the Trailing Arbutus are seen; so do the tiny, white flowers of *Draba verna*, Whitlow grass; the hill-side type of *Viola palmata*, variety *cucullata*, and the composite flowers of *Antennaria plantaginifolia* also above their silky-woolly leaves. It is, however, when the Trailing Arbutus, the dainty Anemones, the fuzzy-leaved Hepaticas, Liver-worts, and the pearly flowered *Sanguineas*, Bloodroot, are in bloom that we feel Spring is surely here again.

Some people object to the botanical use of names, and affirm that English names are good enough, but just note two facts bearing on this discussion; firstly, you may safely use the words *Epigæa repens* in talking or writing to a man of any nationality. He will understand what plant you mean, for the scientific botanical name of the plant is the same in all languages, but the name, trailing arbutus will be understood only by those who speak English. Secondly, the name *Arbutus* conveys to us no characteristic of the plant, but *Epigæa*, from the Greek *Epi*, upon and *Ge*, the earth, exactly describes the plant. It grows not upright but upon the earth; *Repens*, a Latin word, is well translated by our English word trailing, but as previously mentioned, all nationalities understand *repens*, but not trailing.

Not unfrequently those who go out in early Spring to search for Trailing Arbutus blooms, report on their return that it is in bud. They could have truthfully made the same report in the previous December, for this plant forms its flower buds in the Autumn of the previous year, and they remain green and dormant till the next Spring. If gathered in the early Spring and placed in water, these buds rarely develop into flowers. But they will expand, if placed either in a Wardian case or in a tin botanical case or tin box partly filled with moss. The stems of the arbutus should be stuck into the moss; the covers placed on the case or box, and the case put into a rather warm room. The blooms brought out in this way will be large, but will lack to a great extent the pink tint which they have when they flower in their native habitat.

Of all our native flowering shrubs, none are more attractive by reason of the color, form, and fragrance of their flowers than the Azaleas which through their profusion of blooms make our woodlands gay in Spring. In our northern woods, *Azalea nudiflora* blooms in May. The flowers of this species, which are pink, show a considerable range of shade in that color from extremely light to quite dark. It prefers a somewhat dry location in a rather open woodland. In its native habitat, *Azalea nudiflora* makes a rather irregular growth and attains a height of four to six feet. When transplanted into the shrubbery, and kept closely cut back for a year or more, after being moved, it makes a bushy growth and on this lower growth flowers freely. In our somewhat moist and even in our swampy woodlands in the north, we have another Azalea, which blooms in July. The specific name of this is *viscosa*, so named because its white flowers are quite viscid or sticky. This sweet scented Azalea, found often on the margins of swamps along with *Magnolia glauca* and *Clethra alnifolia*, will thrive in a shrubbery

which is not heavily shaded, and in a somewhat dry location. Its adjustment to the change from a heavily to an only partially shaded and from a wet to a rather dry location as has been observed, is not a characteristic of the *Azalea viscosa* only, but belongs to other plants as well: for example, to the beautiful pink flowered *Hibiscus moscheutos*, which can be removed from its natural surroundings in a wet marsh to a rich upland position and will thrive there. As a rule, however, it is much better in transplanting native plants into cultivated shrubberies, to give them as nearly as possible a location similar to their native habitat.

In Pennsylvania along the water courses in the moist woods, the *Azalea arborescens* grows. This species blooms in May; its flowers are rose color, large and sweet scented like those of *viscosa*, but not sticky; they appear before the leaves.

In the mountainous regions from Ohio to Georgia, but especially in North Carolina, grows *Azalea calendulacea*, the flame colored azalea, or Flaming Pinxter, in masses covering an acre or more. The normal color of this flower is yellowish crimson, but it varies from a light to a deep yellow and sometimes to red. The effect of masses of this azalea, which grows six to eight feet high, is extremely brilliant. Still another southern azalea is *Vaseyi*, whose blooms are of a delicate pink color, and contrast strikingly with the bold flame or orange colored flowers of *calendulacea*.

In April, in the North, appear only a little above the surface of the ground between a pair of large velvety, dark green leaves, which overtop them about six inches, the purplish flowers of *Asarum canadense*. The common name of this perennial herbaceous plant is Indian Ginger; it is also called Canadian Snake Root. Its rhizomes by which it multiplies rapidly, have a medicinal value. From Canada to Virginia, over a wide range of territory, it grows wild in rocky, half-shaded situations. In cultivation it is quite useful in rockeries both on account of its soft green leaves and its odd shaped flowers.

In Virginia and southward there are two other species of *Asarum*, namely, *Virginicum* and *arifolium*, but they are much like *canadense*, except that their flowers appear in March. In California there is still another species called *caudatum*, having brownish-red flowers, which are not so much concealed by their foliage as those of the other species. If you have a bare space, even if rather rocky, which you would like to cover quickly with a mass of low, soft, bright green foliage, you can depend upon one of the several species of *Asarum*, suitable to your latitude, to do this.

Ever since many years ago, in the last of May, we found *Actæa alba*, Baneberry, growing near the edge of some ledges on a partly shaded hillside, we have regarded it as an interesting plant. Its attractiveness lies not so much in its racemes of whitish flowers, as in its general appearance brought about by the ternately compound leaves with which its upright stem about two feet high is clothed, and its pretty white berries which follow its flowers. This *Actæa* is an excellent plant for naturalizing in shady woods or planting in a general collection of herbaceous perennials. Another species of *Actæa*, differing very little from *alba* in general characteristics and having the same kind of flowers, is *spicata*, which has red berries. Some botanists consider *alba* only a variety of *spicata*.

Some Good American Shrubs

H. E. DOWNER

IN various ways considerable attention is being directed towards a better appreciation of native plants, both in their native haunts and also with reference to the suitability of many of them for garden planting. A long list could be prepared of the trees, shrubs, and herbs of our roadsides, fields and woods, from which the materials for very pleasing compositions could be selected. These notes, however, are written for the purpose of bringing to notice some of the native shrubs of outstanding value, at the commencement of another planting season. Some landscape designers have made good use of them in large plantings, but most of those who sell and plant shrubs seem to be better acquainted with some of the more showy of the exotics and garden varieties. True enough, we do not wish to be deprived of the plants from foreign parts, as witness the furore caused by Quarantine No. 37. We can find room for all that are desirable. But the real art of planting is in the proper placement of plants which fit the surroundings, and this is something not always achieved, even though the choicest material may have been used. From the following indigenous species a selection can be made suitable for planting in practically any situation.

Rhus canadensis, a fragrant Sumach. This is a very distinct looking sumach, being a dwarf spreading bush, so that it fits nicely in the front of a large planting and is first class to use on a rough bank. From tiny, gray, catkin-like spikes developed in the Autumn, greenish yellow flowers open with the leaves of Spring, followed a few weeks later by attractive red fruit. The leaves are tri-foliate and contribute red and yellow shades in the display of Autumn color.

Dirca palustris or Leatherwood. A small shrub of shapely habit, taking on a compact rounded form when grown in the open, very attractive in the first days of Spring when the small yellow flowers of tubular form open in advance of the leaves. The branches are pliant but almost as tough as hempen rope.

Xanthorrhiza apiifolia or Yellow Root. Here we have a very fine shrub for under planting or to use as an "edger" for planting of larger shrubs. Although it is found along the shady banks of streams, it thrives in quite dry soil, but does grow best in partial shade. In height it does not appear to exceed three feet, and its habit of suckering freely is a good one. It flowers profusely but unobtrusively, the slender racemes of small, star-shaped, chocolate colored flowers preceding the development of the celery-like leaves, which take on a glow of gold in the Autumn.

Benzoin æstivale or Spice Bush. A clean-growing large bush, fine for a background and doing well in moist wooded places. The branches are thickly studded with clusters of tiny yellow flowers, without petals and almost stemless but making a cheery glow that is most welcome in the days when Spring and Winter seem to be contending for mastery. The foliage is good all through the season and finishes up a bright yellow. The fruit is bright scarlet, much loved by the birds.

Hypericum prolificum. A shrubby St. John's Wort, which under cultivation makes a dense bush about five feet high. In flowering, it is all that the specific name implies. The flowers, having bright yellow petals and a mass of yellow stamens make a great showing in mid-Summer, when there are few rivals to attract attention in the shrubbery. It is quite happy in light soil.

H. aureum. This species is not as tall as the former, is of very good habit and has larger flowers. A fine shrub for Summer blooming. Although a native of the South, I have seen it thriving very well in Massachusetts.

Clethra alnifolia or Sweet Pepper Bush. A valuable shrub, generally found inhabiting swampy ground but will grow very well in good garden soil and will stand shade. The fragrant white flower spikes are produced in August, when blooming shrubs are rare.

Baccharis halimifolia or Groundsel Shrub. This is a plant with the unusual distinction of being a shrubby member of the great composite family. It is found along the eastern coast and is therefore well adapted for planting in seaside gardens. I have seen it growing well in good garden soil, but how it would thrive in dry sandy soil I do not know. The flowers are inconspicuous and are staminate or pistillate borne on separate plants. The abundant white silky pappus of the female plant presents the appearance of a shrub in full bloom in late September and October. It responds well to the same pruning treatment as given the Japanese Hydrangeas.

Euonymus americanus or Strawberry Bush. This is a shrub of slender habit, most effective when several plants are grouped, and in a mixed border the bright green stems show to advantage. Its glory lies in the display of fruit, and when the warty capsules of rosy red burst open and show the bright scarlet seeds the effect is gorgeous.

Rubus odoratus or Purple Flowering Raspberry. A vigorous, upright grower, increasing from the roots to form a spreading clump, a good plant to fill a shady corner. The leaves are unusually large for a *Rubus* and the flowers, nearly two inches across, are produced almost all Summer. The fruit is palatable though not to be compared with cultivated raspberries.

Sambucus canadensis or Common Elder. If this roadside shrub could be regarded as a rare exotic, it would undoubtedly be in good demand for garden planting. A good mass planting is most effective in June, when the large flat clusters of white flowers are open. The resulting display of purple berries seldom lasts long, as those that are missed by the gatherers for wine-making are swallowed by the birds.

Ilex verticillata or Black Alder. A deciduous holly whose berried branches used in Christmas decoration are familiar to more people than the growing plant. Found chiefly in swampy places, it does not insist on a wet soil in order to thrive. Individual plants do not make heavy specimens so that a planting is more effective when several plants are grouped.

Aronia arbutifolia or Red Choke-berry. A good ornamental shrub for a mixed planting, and in need of good soil, with plenty of moisture to be at its best. The habit of growth is bushy, the flowers are white, in clusters like its relative the Hawthorn, and followed by bright red berries.

Cephalanthus occidentalis or Button-ball Shrub. Another swamp inhabitant that well deserves a place nearer the habitations of men. When well suited, it makes a big spreading bush eight or ten feet high, and as far across. It is very attractive in July, when the white globular flower heads, each composed of a great number of small tubular, fragrant florets, are at their best.

Vaccinium corymbosum or High-bush Blueberry. In moist soil, this well-known berry producer is a very satisfactory shrub to cultivate, not so much for the edible

fruit as for the gorgeous display of colored foliage in October. When well suited, it grows into a good sized compact shrub, good looking all through the season.

Cornus paniculata or paniced Dogwood. This is a very useful shrub for mass planting, of medium growth and very bushy. It makes a very attractive showing in Spring with its numerous clusters of white flowers, and again in early Autumn with the white berries, which are carried on red stems. Its branches are smooth and gray, so that it is a particularly good looking shrub the year round.

Viburnum cassinoides or Withe-rod. This is perhaps the best of the native viburnums for garden purposes. It is excellent for massing in partially shaded places, under such conditions the growth being somewhat loose. In the open, it makes a compact well-formed bush about six feet high. The flat cymes of creamy white flowers are usually borne in great profusion, but its glory is the ultimate display of fruit which in early Autumn changes from green to bright rose, then to blue black, the transition of colors producing a marvellous effect.

V. opulus or High-bush Cranberry, is a very handsome species in flower and fruit. The white flower clusters have an outer ring of larger, more showy sterile flowers. Its clusters of large brilliant red berries are especially showy and hang on all Winter, the birds seemingly not caring for them.

V. dentatum or Arrow-wood is a slender grower up to ten feet or more. It has good looking foliage and will stand shade. The small heads of cream colored flowers open around the first of June, the resulting berries turn blue black by early Autumn, and are usually cleaned up early by the birds.

V. acerifolium or Maple-leaved Arrow-wood is a sturdy dwarf which does well in dry shady places and is well placed along the edge of a plantation. It is particularly attractive in the Autumn when the leaves assume rich tints and the clusters of fruit change from red to dark purple.

WHAT THE HOME GARDEN SHOULD BE

(Continued from page 63)

fruitful theme for painters and poets? A home without a garden is not quite a home. A child whose first impressions of the world in which he is destined to live and work are associated with flowers and trees and all that goes with them of pure air, birds and sky, and health, physical, mental and moral, begins his career with a tremendous advantage; no teachings are purer, no education more effective, in laying the foundation of future character than familiarity with these, the best gifts of the Creator to mankind, and he who cultivates a plant for love of it cultivates his own mind and heart at the same time.

THE GOURD

(Continued from page 61)

enough to permit a teaspoon to enter freely. Then remove the seeds and the soft spongy meat and scrape off as much as possible of the harder meat. When all parts of the shell have been perfectly cleaned, the gourd must be dried.

This can be conveniently and satisfactorily performed in some warm room, although they may be placed with equal success in the warm sun. The intense heat of a stove should be avoided since the fresh gourds are apt to shrivel when dried too quickly. When dried the gourds retain their shape and are not easily broken.

The natives of the tropics and subtropics, where these plants are found, protect and cultivate these vines to some

extent. For, in the first place, these plants give them the material for saucers and bowls, ladles and water bottles. A material fashioned by Mother Nature into all possible shapes and forms, and which, with but little work is ready to be used as household articles. The natives, whose notion of artistic instinct is more or less vague, adorn these articles in various ways, just as their sense of beauty may dictate. Almost all their gourds show a few parallel decorative lines, while others are adorned with more elaborate designs.

THE CALANTHE

(Continued from page 62)

Calanthes can be propagated to increase one's stock, if desired, by cutting the bulbs transversely and standing them in pans of sand (coarse) which should be placed in strong heat in the propagating frame and kept moist. By this method you will get small but healthy bulbs to increase your stock for the following year. Another method being to pot up some of the strongest of your old bulbs (two years old) which will with ordinary care throw you some quite strong young bulbs for you to work up for the next season. To insure success by this method, carefully examine under the base of the bulb for a dormant eye or lead, as this is usually where they are found, whereas with a one year old bulb, the growth or lead comes from the side of the bulb base.

Calanthes are often infested with white and brown scale. These, of course, must be gotten rid of by careful sponging, the leaves being very brittle and easily damaged. The worst disease the grower has to contend with is the black-rot or spot, a fungi pest which is fatal to the *Calanthe*. Take my advice, if you ever have the misfortune to get this in your plants, the quickest and best way is to burn the whole lot and get a new stock—as it spreads year after year from the same stock. The disease is often caused by over watering coupled with low night temperature.

The late B. S. Williams of Paradise Nurseries, London, in one of his works on Orchids quotes an instance of seeing a plant of *C. Veitchii* in the collection of S. Mendel, Esq., grown by Mr. Petch, with bulbs almost eighteen inches long which threw a spike six feet high and carried over one hundred and fifty blooms. (*Veitchii* is *Limatodes Rosea* × *Calanthe Vestita* by Dommy.)

The *Calanthe* is one of the easiest of orchids to hybridize after a little experience, and they have a great advantage over most other orchidaceous plants in this respect, as the seed ripens in three or four months from the time of fertilization, and it takes from two to three years from seed-sowing to their flowering stage. Some difference to most *Cattleyas*, *Laelias* and *Brassos*, etc., which take anywhere from six to ten years from seed-sowing. The seed should be sown on the compost previously recommended for potting purposes, and be kept close in a temperature of 80° to 85° till the seedlings appear. These want very careful handling indeed when very young, but when once established are easily managed as long as one has a good steady heat of 70-75° by night with an additional rise of about 10° during the day. I have used the following chemical formula for *Calanthes* twice a week during their strong growing season with excellent results:

4 ounces of Potassium Nitrate Saltpetre

4 ounces of Ammonium Phosphate

Dissolve in four gallons of soft water and use two ounces to each gallon of water

Our deeds determine us as much as we determine our deeds.—*George Eliot*.

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

WE have now arrived at the season of the year when everything is waking up from the long Winter rest of the past months. In late March and early April the gardener has to keep alert that nothing is forgotten in the way of preparation for the coming season. His head, and many times his hands also, has to be in good working shape. Many small important things are likely to be forgotten that later on might hamper him in his work. Daily reference should be made to notes on the previous season's work. I have also found it of great benefit to all concerned to take my helpers into confidence in planning the work for the coming season. Draw to their attention that we are working jointly for the same employer; that he is entitled to all the brain power we possess, and should they notice anything that I may overlook, not to hesitate a minute to remind me of the same, and I will thank them for it. I am a great believer in encouraging independent thinking, and I heartily agree with a very able financier I once worked for, who said that he had obtained some very fine ideas from men that were considered fools.

I have no patience with the type of gardener I heard of lately, who told one of his helpers that he was not supposed to think; he was here to do as he was told. We have had experience with such in bygone days. I knew of one some years ago who told an assistant to go and water a certain bench of planted out plants. The man went and after looking it over, and examining the soil, came back and reported that he did not think it required water. He was ordered back to water it immediately. The gardener made the poor fellow water the bench every day for a week. Such treatment I call tyranny. One can readily imagine the conditions of that poor bench of plants.

As a rule at this season, from March 15 on, snow is pretty well gone, and if perchance we have late storms it does not last long. Snowdrops and other early Spring bulbs will be beginning to flower, reminding one that Nature is beginning to put on its Spring glory.

The lawns will now need attention raking up all twigs and leaves that may have fallen on them during the Winter. Bare patches will have to be seeded and any unsightly depressions filled in by removing the turf and filling it with loam. A good topdressing will also be in order. I prefer bonemeal and wood ashes, also an application of lime. I don't like barnyard manure as it is almost sure to bring in many seeds of dandelion and other pernicious weeds that disfigure so many lawns. Of course, if no limit is set on help, a lawn can be weeded regularly, as well as any cultivated piece of ground, and the so-called natural manures lend a deep lustre to grass and are more lasting in their effect than the artificial fertilizers. After the lawns are cleaned and topdressed, it is better before mowing commences, to give them a rolling with a good heavy roller. It gives a nice level surface, and any small stones that may be lying loose on the surface are pressed into the ground out of the way of the knives of the lawn mower. Be liberal with lawn grass seed, as if one has a good thick seeded lawn, it helps to crowd out weeds.

As soon as frost is out of the ground and the soil in fairly good condition get all digging and ploughing pushed forward. If it was done in the Fall it will not be sufficient, as the Winter has baked it down quite hard, and soil always delights in a good stirring up. Dig deeply, and if time and labor are available, trench the ground.

In ploughing in my young days market gardeners made use of a subsoiler in the furrow after the plough, loosening up the subsoil. The result was that the ground was worked more than twice the depth of ordinary deep ploughing. This extra amount of labor was always apparent in the extra heavy yield at harvesting time. A missionary told me some time ago, that the Chinamen are masterhands at deep cultivation of the soil. Where he was located they had very small farms and manure was not over plentiful, but they made up for the lack of it by deep cultivation with very crude tools. The whole family worked and turned it over year after year to a great depth. The result was a quantity of crops that would astonish a westerner. He was brought up on a farm, therefore knew something about production.

One of the first and best outdoor vegetables, of course, is asparagus, and the bed should receive early attention. To grow asparagus well it requires plenty of plant food. In fact, it may be considered a gross feeder. Dig in plenty of barnyard manure as soon as the soil can be worked. It also likes the soil kept open, which necessitates frequent cultivation. When the ground is stirred, applications of tankage or any killing house refuse may be given. Sait, superphosphate and soft coal soot is also recommended by good growers, giving a little every time the ground is stirred up. In making a new plantation, secure strong one-year plants. There is some difference of opinion how far apart to plant. Some advocate three feet each way, and others two by four. I have always planted two feet between the plants and three feet between the rows, and about seven inches deep of a furrow, gradually filling in as the plants grow. A warm sheltered spot should be selected facing south, as this delicious vegetable is wanted in the Spring as early as possible.

Keep up successions of peas, planting at least every two weeks. Don't sow too thickly in the rows, as peas branch somewhat, and a better crop can be had if the seed is scattered thinly. We have found the variety called Pilot a fine pea for early use. Sow carrots, parsnips, beets, lettuce, parsley, as soon as ground will permit it. Onions that have been potted and hardened off well, can be planted outdoors about April first. Seeds of onions may be sown in March if ground is in a suitable condition.

Sow annuals for succession, especially the annual asters, as they are among the best of our cut flowers. The single-flowered type are by many preferred rather than the double ones. Personally I think they are more decorative.

Much forethought is required if a steady succession of flowers is to be kept up in the herbaceous garden. The colors that are most acceptable to the family are to be studied out, and an ample supply of plants has to be on hand to fill in. To keep herbaceous borders looking well throughout the season demands much labor and skill in grouping the plants. As plants go out of flower others have to be ready to take their places. If one is restricted to certain colors it makes it all the more difficult. Many plants have to be grown in pots, others can be transplanted from the supply garden. There are quite a number which can be dug up when coming in flower and transplanted into vacant spaces, if they are dry at the roots at the time of lifting, and given a good soaking of water after they are placed in position. These notes refer especially to annuals without which no herbaceous borders can be kept in color throughout the season. Such things as lilies and gladioli are better if pot-grown.

Rock gardens are becoming very popular and there are generally many positions where they fit in well. They, however, never should be attempted unless one has plenty of help at his command, as they have to be weeded by hand and those that do the work must be well posted on and plants used.

Roses may be pruned early in April. Hybrid perpetuals we prune back to two eyes. Where garden effects are desired they may be left much longer. With Teas and hybrid teas we only thin out the weak wood. Ramblers or hardy climbers need to be cut back to keep them within their allotted space, and all weak and useless wood removed; over crowding must be avoided.

Canterbury bells (*Campanula medium*) can now be planted where they are wanted in the border or in other places where they will be effective or useful for cut flowers.

Forget-me-nots (*Mysotis*), pansies, and English daisies (*Bellis*) that were Fall sown can now be placed in their flowering positions when weather permits. For Summer flowering pansies, sow the seed outdoors about the end of April and transplant to the flowering quarters when large enough to handle. Spring sown pansies last well through the Summer if well watered.

Any planting of shrubs can be done now; personally I have always had better success planting trees and shrubs in the Spring than in the Fall. They, however, need careful attention as regards watering throughout the Summer. As regards roses, unless they have been pot-grown, we always believe that on receiving them from the nursery, the best thing to do with them is to bury them in a trench, covering them with good damp soil for a week or ten days. Quite often they have been out of the soil for a long time and are somewhat shriveled. The burying process will plump up the wood. There is too much of the slap-dash method with many nurserymen. Sales seem to be what many of them are after so that not enough attention is paid to the goods delivered.

IN THE GREENHOUSE

In the greenhouse everything is now in more or less active growth. There will be many Spring plants in flower and the difficulty will be in retarding the flowering period of many things for later use. A light cool pit or a greenhouse facing north is almost indispensable at this season of the year. Acacias or other hard-wood plants that have finished flowering need looking over. If they are root-bound they require potting. I never like to trim them into shape until they show signs of starting into new growth and have gripped the new soil. Use a mixture of peat and good loam, if a good fibery peat is obtainable. If not, use plenty of half-decayed hard wood leaves, along with the loam. Avoid all use of lime in the soil, as hard-wood plants do not object to an acid soil, in fact, they do better in it. Any hard-wood plant that is not over well rooted is better if allowed to go a second year in the same pot, giving waterings with soot water alternately with Clay's fertilizer. Be careful never to overdo feeding hard-wood plants. Rain water is best for all plants and especially for the hard-wood shrub section. It is a pity that one does not see more often provision made for catching the rain water from the roofs of greenhouses and other buildings. A good waterproof tank should be made handy to the greenhouses, supplied with a motor, or gasoline-driven engine pump with pipes leading all through the greenhouses. An experienced eye can soon detect it in the general appearance and healthy look of the plants, especially the foliage. Many of the difficulties that one has with certain plants of the heath family and orchids might be overcome by the use of rain water.

Keep the young begonias of the Lorraine type, and the *Socotrana* tuberous rooted hybrids potted as long as they require it. Never allow them to get pot bound. Keep them growing in a temperature close to 65 degrees.

All bedding plants for outdoor work may be potted into 3½-inch pots the last of March. That size of pot will generally carry them over until such time as they are planted outdoors.

A batch of cuttings of *Euphorbia jacquiniæflora* may be secured and rooted at this time. Do not over-water these cuttings. Give them a good watering when they are put in and allow them to get fairly dry before another is given.

The prunings of the smaller wood of *Dipladenias* may be cut under two leaves about an inch long. These make excellent cuttings and treated the same as *Euphorbia*, root readily in a temperature close to 65 deg. Old plants of *Dipladenia* should now be starting into growth and may be potted if they require it. We run them two years in the same pot, after they are well rooted in size 7 in. Lack of success with *Dipladenia* is, as a rule, due to overpotting, and growing them under too heavy a shade in a hot humid atmosphere. We grow them in an old greenhouse that is never shaded and all Winter the temperature is never over 50 deg. Very little water is given during the Winter months, just enough to keep the wood from shriveling, which is generally about once a week when we syringe them, as they are subject to red spider. They flower with us from June until the middle of January. Cuttings rooted as advised above will flower beautifully in 3½-inch pots the first season. They delight in a good open compost of fibre, loam and chopped up roots of *Osmunda* fern, otherwise called orchid peat. Add some coarse bone and charcoal to the compost. We have a large plant in an 18-in tub which has not had a shift for three years. It is now starting well into growth, and after it is in full growth, we shall feed it twice a week, once with Clay's fertilizer and the second time with cow manure water, a good handful to an ordinary three-gallon watering pot.

Gloriosa rothschildiana *superba* is another good Summer-flowering plant. Start singly in small pots, and when they have made a fair quantity of roots, five or six may be placed in a 12-inch pot. Use a compost of good rich lumpy loam with enough sand to keep it porous. When starting them in small pots, water very little until growth has commenced. A trellis has to be used to train them on, in any shape desired. *Gloriosas* require a night temperature around 60 deg., and should never have more than a very light shade over them.

Foliage plants in the tropical house will now be growing nicely, and careful shading is required on all bright, sunshiny days. Crotons require only a very light shade, just enough to keep the leaves from burning, otherwise one will get very poor colors on them. Airing in the tropical house has yet to be carefully done to avoid draughts. Damp the benches and floors well several times a day, and syringe the foliage well in the forenoon. Vigilance against insect pests must be exercised at all times, as nothing injures the beauty of the leaves more quickly. Palms may be fed liberally, if they have not been repotted this Spring. A night temperature around 55 deg. is best for them, as they make a much firmer and hardier growth, and can stand being moved around better when they are required for decorative work.

By April first many of the hardier annuals and plants that are to be used for planting out, may be transferred to cold frames. They can be aired more freely on all good days, preparing them better to stand up under outdoor culture, when the time arrives for planting them out. The Darwin Tulips can now be enjoyed. They do not like to be forced in a high temperature; 50-55 deg. is warm

enough for them overnight with a good airy atmosphere during the day.

Be sure and have a good stock of *Buddleia asiatica* for next year. It can be kept a long time in bud in a cool pit; and after *Stevia* has passed flowering, will take its place, both as a plant and as a cut flower. Keep the young plants potted along as they require it. Cuttings of *Stevia* may be also rooted, both the dwarf and tall growing varieties have their place in decorative work.

Some of the earlier flowering *Camellias* will be starting their young growths and should be fed with Clay's fertilizer and soot water. These plants do not like overpotting. See that they have free drainage.

Watch the shading in the orchid houses. Although they do not like full sunshine under glass from now on, as the foliage is likely to burn, yet they need all the light possible to ripen their growths for flowering, so that heavy shade has to be guarded against. A nice deep green on the foliage looks well, but good flowers are of more account. Orchids like to be grown near the glass. In fact, from my observations I find that all flowering plants do better the closer they are to the glass when growing. Why this it so I do not know, probably some of our scientific friends can enlighten me.

Cœlogynes, Chatsworth variety, has just finished flowering with us. This is one of the freest-flowering orchids, likewise one of the prettiest when in flower. *Cœlogynes* of this type do not relish disturbance at the root often, and therefore it is better to let them alone, until it is absolutely necessary to repot them.

The fine old *Cattleya Triana* is still flowering, also *C. S. Schroderae*. As they go out of flower examine the condition of the roots, but do not disturb them unless the compost is in a rotten condition, or unless they have run over the sides of the receptacle. *Dendrobium Wardianum* will now need a warm moist atmosphere to develop next year's flowering bulbs. One of my neighbors has had fine success with this fine *Dendrobe*. He takes a small side growth from an old stem and in a year or two has a fine plant. He grows it in a rose house with practically no shade and feeds it with hen manure water. He certainly knows how!

Cymbidium are also flowering; they are among the finest of orchids, lasting a long time in flower. They grow well in the coolest part of an intermediate house. Pot them in a mixture of fern root, sphagnum moss and loam and do not over water.

Late flowering *Calanthes* will now need attention. Pot them as advised in last month's notes for the earlier ones. *Phalenopsis* are flowering with us. After flowering see that the compost is in a healthy condition. If it looks in a rotten state, remove as much of it as possible without breaking the roots and topdress with fresh material.

The grapes are all in a growing state. The earlier ones need thinning and those that have come along with the increasing heat of the sun will need disbudding. Keep the borders stirred up and give liberal application of food as the growths increase in vigor. Be sure and never overcrop, as it is much better to be on the safe side, when it comes to ripen the fruits.

Peaches may be syringed freely until the fruit approaches the ripening stage, as under glass they are liable to attacks of red spider. Feed them a little as the fruit is swelling. Disbud any superfluous wood on the pot fruit, retaining enough for next year's crop, and preserving the symmetry and shape of the plant. They need far more water and food than fruit planted out in a border.

Fig trees fruit well in pots. We have taken six nice fruits of *Brown Turkey* off a six-inch pot; the cutting was rooted the early part of the year and grown on a shelf

close up to the glass all Summer. They are gross feeders if grown in pots.

A busy season is ahead of us. Let us utilize all the knowledge gained by visiting our neighbors, attending flower shows and meetings for discussion, without which, and a liberal amount of reading, a gardener is very apt to get into a rut.

"THE LEAF-MINER IN BOXWOOD"

ABOUT a year ago the writer's attention was called to some Boxwood bushes that looked as if they had been Winter-killed. On careful examination he discovered that the cause of this appearance was due to a small maggot, or midge, securely housed between the two layers of the small leaves causing a blister-like surface. It is needless to say that he at once started a thorough investigation to find out just what this new trouble was, and the best means to combat it.

After a great deal of expense both in labor, and spraying materials that were supposed to destroy this new addition to our ever increasing list of plant-life enemies, and also causing an endless source of worry both to the owners and gardeners of large estates throughout the country, he feels safe to say that up to the present time all of the sprays recommended for this insect are of very little value.

You have only to study the life of the Boxwood leaf-miner, as it is now known, to understand that it is beyond the reach of any spray until it hatches out in the form of a fly, and then, to the writer's way of thinking, it is too late. The little success that has been gained in catching the full-grown fly with the various oil and soap sprays has been very small compared to the advance this insect has made during the past year.

The writer has personally inspected a great number of varieties of Boxwood on large estates where a great deal of money has been spent in labor and spraying materials, and today the bushes are as badly affected as some that were never treated. Then again you will often hear it said that this leaf-miner will not attack the Old English Box (*Buxus suffruticosa*). This is a great error, for while this insect does not appear to attack this variety as readily as some of the others, the writer has seen some very fine bushes of *Suffruticosa* badly affected.

On the other hand you hear the question from owners of fine Old Box bushes, that have been in the family for a great many years, "What can we do to save these old heirlooms? or are we to lose them?" Of course that seems a hard question to answer. But it can be answered, and answered with a big "No; you do not have to lose them unless you want to." It has been the writer's pleasure not only to know that the leaf-miner can be killed, but he has had it killed on bushes that were badly affected, and this was not done after it had hatched out in fly form, but while the maggot was between the two layers of the leaves. This was not a 65% kill, but a 98% kill, without any harm to bushes so treated.

The writer is well able to vouch for the above facts, and will be willing to answer any further questions on the subject to anyone interested.

Wm. Shaw, Elkins Park, Pa.

Live for something! Do good, and leave behind you a monument of virtue that the storm of time can never destroy. Write your name in kindness, love, and mercy on the hearts of thousands you come in contact with, year by year, and you will never be forgotten. Your name, your deeds, will be as legible on the hearts you leave behind, as the stars on the brow of evening. Good deeds will shine as the stars of heaven.—*Chalmers*.

Foreign Exchange Department

DAFFODILS AS CUT FLOWERS.—As in the case of other flowers, when there happens to be a profusion of bloom, there is in that of the Daffodil also the same danger of overcrowding taking place. Surely no better example of the beautiful is needed than is provided in the natural growth of these pleasing flowers, the foliage, in combination with the blossoms, affording an example of what to adopt when arranging the cut blooms. When growing and in flower the foliage and the blossoms seem to be, as they really are, quite indispensable the one to the other. Let this be imitated, then, as nearly as possible when disposing of the cut blooms, and afterwards, if need be, compare the natural style with the opposite or unnatural, of massing the flowers something in the same manner as they are sent to market in bunches, with which it is a rare occurrence for any foliage to be included, much as it is needed. Each flower should be so displayed as not to crowd upon that next to it; it is only in this way that the best possible effect can be had. Oftentimes when cutting Daffodils from home-grown plants there is a danger of two mistakes being made; the one is that of gathering too many sorts at once, and the other that of taking flowers which have been expanded for some time. It is not, perhaps, generally known that many who exhibit Daffodils in large numbers cut them before they are really fully expanded. Afterwards they continue to develop, but may not possibly reach quite to the size of blossoms still upon the plant; but invariably the color is slightly better unless shading is adopted.

Regarding the use of the foliage, it may be urged that to cut it largely would weaken the bulbs, but it may be taken a leaf here and a leaf there, so as not to make any perceptible difference, or where a good stock of the common Daffodil exists, its foliage can be taken in preference. To mix the different types is not desirable.—*Gardening Illustrated*.

STEVIA PANICULATA.—This delightful *Gypsophila*-like plant, sometimes known as *Stevia serrata* has been cultivated in France for a great number of years, whilst in the U. S. A. it has been an important florists' flower for more years than I can remember.

Some day, perhaps, growers and gardeners generally will wake up to the value of *Stevia paniculata* to follow *Gypsophila paniculata*. Seed is easily obtainable, and by sowing early the plants may be flowered in the open before frost occurs, or they may be lifted and planted to flower in early Winter like *Chrysanthemums*.

The roots are perennial, and if stored like Dahlias may be restarted the following season to flower very early.—*The Gardeners' Chronicle* (British).

PYRACANTHA GIBBSII. (Award of Garden Merit, November 27, 1922)—No trees or shrubs have more justified in 1922 their inclusion among garden plants than the well-known coral red *Pyracantha coccinea* (or *Crataegus pyracantha*, as it is still often called) and its beautiful variety *Lalandei*, with larger, more orange fruits, that come to us from Asia Minor and South Europe, but China has much more recently yielded some beautiful shrubs apparently nearly related to the Napoleonic representative of the genus, *P. crenulata*, but sufficiently distinct to warrant separate names, at any rate in gardens. It is difficult to say which is the most beautiful of these newcomers, and not all are yet widely known, but among them *P. Gibbsii* will certainly hold its own. Quick-growing to about 10 feet in height, with glossy dark evergreen foliage considerably larger than that of *P. coccinea*, making a tall, rather fastigate bush, flowering abundantly just after the Hawthorn ceases with dense bunches of white flowers, and never failing to bear great bunches of brilliant scarlet fruits as large as peas and contrasting beautifully with the foliage from October to December, this is a species worthy and capable of filling a place in any garden. The seeds grow freely, and may give rise to forms differing somewhat in the shape of the leaves, the exact shade of the ripe fruits, and the precise time of ripening, but all alike worth growing; and if it be desired to propagate any one of the forms it may readily be done, either by cuttings or by layers.—*Gardening Illustrated*.

THE RUSSIAN VIRGIN'S BOWER (*Clematis Tangutica*).—This commands attention from all points of view, owing to the profusion and rich color of its flowers. Like many other shrubs, this alters its character after the first few years, and instead of the elegant, frail plant so beautiful and refined during that period, it becomes a strong, rampant grower more suited to clothing the sides of a pergola or large tree stump where its long garlands of flowers may droop to their full extent, displaying their graceful charm in that beautiful loose manner so much admired by all lovers of picturesque gardening. It is the most striking of

all the yellow-flowered Clematises, and although occasionally referred to as a variety of the well-known *C. orientalis*, it is— from a garden point of view—totally distinct and a vastly superior plant in every way. It is a native of Central Asia and appears to have been first introduced to Kew from St. Petersburg in 1898.—*Gardening Illustrated*.

A NEW BUDDLEIA.—*Buddleia alternifolia* is a widely branched and vigorous shrub, producing during June quantities of rich lilac-purple blossoms on the growths of the previous year, so that one cannot prune it in March as is done with *B. variabilis* varieties. Introduced by the late Mr. Reginald Farrer from Kansu, the dainty yet luxuriant growth of this *Buddleia* is in marked contrast to the vigorous shoots of *B. variabilis*.—*The Garden*.

DEPARTMENT OF BOOK REVIEWS

DECORATIVE PLANTS, TREES AND SHRUBS, by F. J. Fletcher, F. R. H. S. Benn Brothers, Ltd., London.

This concluding volume of the series of six volumes, coming, as have the others, from the experience of an unusually successful nurseryman, is, even more than the preceding five of these books, justly entitled to the consideration of propagators of plants in America. It is even delightful reading, for, more than the others, it gives scope to the aesthetic ideals of its author. In the midst of his enthusiastic appreciation of the beauties of plants grown for ornament he is nevertheless consistently practical. At only one point does his zeal carry him away; in dwelling upon the charms of the hybrid lilacs he has forgotten to tell how to propagate them. But in other matters, particularly those relating to the propagation of plants the importation of which into the United States has been nearly altogether cut off, the treatment is such that every horticulturist would find at least useful suggestions. The management of cuttings is set forth with all necessary details the disregard of which makes our hurried American methods successful only in part.—F. B. M.

WINTER BOTANY, by William Trelease, Professor of Botany in the University of Illinois. Published by the author at Urbana, Illinois.

This is a companion to "Plant Materials of Decorative Gardening," designed to aid in identifying the same woody plants, except the conifers, in Winter. It is extraordinarily compact, composed with precision, each subject beginning a new page and clearly illustrated by an accurate drawing of the parts distinguishing it most. In the use of the keys attention is called to an amazing number of points of difference which lead to fine appreciation of the structure of the plant under examination. Much more than in the other work there are remarks concerning the history of many of the plants and concerning their peculiar properties of one kind or another. Some of these remarks are of a character to interest the horticulturist and the gardener.—F. B. M.

HORTICULTURE FOR SCHOOLS, by the late A. V. Stubenrauch, Milo N. Wood and Charles J. Booth. The Macmillan Company, New York.

Although the actual composition of this latest addition to the Rural Textbook Series is the work of two Californians it gives unmistakable evidence throughout of having for its foundation the material assembled by the deceased senior author, his method and his point of view. His post-graduate studies were taken at Cornell University and he served for a time at the University of Illinois and in connection with the pomological work of the United States Department of Agriculture. It furthermore has had the careful oversight of Professor Bailey, and among several other coadjutors there has been one from the West, one from the Central West and one from the Southwest. But it has not been made too learned in the sense of being prolix, ponderous or abstruse. On the contrary, it is, for contents, general arrangement, method of presentation and completeness most admirably adapted to the purpose for which it was designed, that of serving as an elementary text-book in schools and in reading courses.

The part devoted to the Use of Ornamental Plants was necessarily made very summary; while the enumeration of ornamental material is sketchy and is far from being an approach to completeness, the condensed statement of the principles of landscape design is happily sound. The entire work is accurate and reliable, with but few minor exceptions, such as failing to observe that it is only *Berberis vulgaris* and its varieties and not the oriental that are intermediary hosts of the common wheat rust and such as referring to pepper plants as hardy.—F. B. M.

TENTH INTERNATIONAL FLOWER SHOW
GRAND CENTRAL PALACE, NEW YORK, N. Y.
MARCH 12-17, 1923

Do not overlook this important horticultural event

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa. (Date not decided.)

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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Secretary M. C. EBEL, <i>New York, N. Y.</i>	Treasurer MONTAGU FRILL, <i>Brooklyn, N. Y.</i>

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LOCAL BRANCHES

NEWPORT, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.

ST. LOUIS, MO.: George H. Pring, chairman; Hugo M. Schaff, secretary.

NASSAU COUNTY, L. I.: James Duthie, Oyster Bay, chairman; John McCulloch, Oyster Bay, secretary.

BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Graig, Weymouth, secretary.

WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of the Western Pennsylvania Branch of the National Association of Gardeners was held in the Carnegie Library, Pittsburgh, on Tuesday, February 20. Manus Curran, our chairman, was unable to be present on account of illness, and John Barnett was elected chairman for the evening. A. F. Frishkone and David Fraser, the committee appointed to make inquiries regarding accommodation at hotels and a suitable convention hall, reported in detail.

It was decided to hold the convention on August 14, 15, 16 and 17 at the Fort Pitt Hotel, subject to the approval of the Executive Board.

George W. Burke, superintendent, Bureau of Parks, Pittsburgh, was endorsed by this branch for membership in the

National Association. Neil McCallum gave a short but interesting talk on "The Wilful Destruction of Wild Flowers, Trees and Shrubs," using as an illustration "The Wild Flower Gatherers" as illustrated and reprinted in the February CHRONICLE. This branch feels the public should be educated along these lines. The chairman announced the following chairmen of convention committees:

General Chairman—Manus Curran.
Chairman of Publicity—John Carman.
Chairman of Banquet—August Frishkone.
Chairman of Lecture—Neil McCallum.
Chairman of Traffic—Wm. B. Thompson, Jr.
Chairman of Entertainment—David Fraser.
Chairman of Programme—Henry Goodband.

The next meeting will be held on Tuesday, March 20, at Sewickley. Plans are well under way for the annual convention at the Fort Pitt Hotel, Pittsburgh, next August, and the various committees hope to be able to make a detailed report at this meeting. We ask all members and friends interested to show their co-operation by attending.

HENRY GOODBAND, Secy.

THE BOSTON BRANCH

A meeting of the Boston Branch of the National Association of Gardeners was held at Horticultural Hall, Boston, Friday evening, March 2. Robert Cameron presided and about forty members were in attendance, some having traveled thirty to forty miles to attend the meeting.

President Cameron, on request, read a paper which had been reported in part in THE GARDENERS' CHRONICLE OF AMERICA and some other papers, and in full in one trade horticultural journal. He read also a number of letters received since the New England Nurserymen's Convention, all in hearty commendation of his stand. He read extracts from discussions and editorials on the same subject, some of them written over twenty-five years ago, showing a desire at that time on the part of professional gardeners to drive unworthy, unscrupulous and fraudulent men from their ranks, who are not true gardeners at all but impostors. Mr. Cameron thought the drummers were a perfect nuisance, and that seedsmen might well advertise more, and keep their men at home.

A long and animated discussion followed Mr. Cameron's paper, and among those participating were George F. Stewart, James Methven, Walter H. Golby, James Donald, W. N. Craig, Andrew K. Rogers, P. J. Van Baarda, Stewart Forbes. A number of members warmly defended the drummers and considered them a necessity; others felt that New York and Boston seed houses send men out on the road far too much, so that drummers become a nuisance. The "graft" question was considered at length, and it was the opinion of practically all present that there was very little of it prevalent among gardeners, and that the offenders were in nearly all cases men who were not trained gardeners at all, but hired at a cheap rate by employers, unwilling to pay a fair salary such as a competent man commands.

Mr. Cameron was given a hearty vote of thanks, and it was voted to hold another meeting on the afternoon of April 6, the second day of the Boston Spring Flower Show.

W. N. CRAIG, Secy.

A NEW BRANCH PROPOSED

Thomas W. Head, a trustee of the National Association of Gardeners was invited to address the Monmouth County Horticultural Society on February 15, on the subject of the National Association of Gardeners, its aims and achievements. Mr. Head spoke before a well attended meeting and as former President and Treasurer of the National Association, he was able to present some interesting data from the beginning of its reorganization through its gradual rise to the prominence it has now attained. Mr. Head mentioned the co-operative spirit that has developed between the Garden Club of America and the Association and some of the discussions which have been held at the conventions of the Garden Club concerning the profession of gardening and the association which represents it. He also spoke of the interest manifested by estate owners in entertaining the visiting gardeners on their estates, at the time of the annual conventions. Mr. Head referred to the training course which has been established in the Massachusetts Agricultural College through co-operation between the college and the association. In general he reviewed the hard road which the association at times had to travel and how it persevered until today it ranks as one of the foremost organizations of horticulture in the country. All in all the meeting was a most successful one with enthusiasm aroused and the general feeling created that a local branch should be established.

Mr. Head was also invited to attend the monthly meeting of the Elberon Horticultural Society on March 2 to repeat his talk on the National Association of Gardeners which he gave before the

Monmouth County Horticultural Society. Quite a delegation accompanied Mr. Head to Elberon from the latter society and the attendance at the meeting was very representative of the "old timers" and the younger element of the profession. William Waite, William Turner, Edward Regan and Alfred Millard were noted present among the gathering. The talk which was practically the same as above outlined was well received. Several members entering into the discussion which followed, remarked that they had no idea that the association had been doing and is doing such great work, and that it stood for such good things in the gardeners' interests. A number present, not members of the association, signified their intention of becoming members. The general sentiment was that the Elberon Horticultural Society should unite with the Monmouth Horticultural Society in forming a branch of the National Association of Gardeners. It was decided that immediately following the New York Flower Show such an organization should be undertaken.

CLEVELAND BRANCH

A meeting of the members of the National Association of Gardeners residing in the Cleveland district, was held at the Alhambra Restaurant on Monday, March 5, to consider the organizing of a local branch. Robert Bryden occupied the chair.

John Barnet, of Sewickley, Pa., president of the National Association of Gardeners, spoke at length on the advantages of local branches, and gave in detail the object of the association. A general discussion followed, the members present being unanimous in favor of forming this branch. Several members unable to attend, wrote expressing their approval.

The next meeting will be held at the Alhambra Restaurant on May 7 at 7 P. M.

GEORGE WYATT, Secy. pro. tem.

NASSAU COUNTY BRANCH

A meeting of the Nassau County Branch has been called for March 14 at 6:30 P. M. in Pembroke Hall, Glen Cove, prior to the regular monthly meeting of the Nassau Horticultural Society which will convene at 8 P. M. at the same place. The branch meeting will be reported in the next issue of the CHRONICLE.

NEW MEMBERS

Active members: Geo. W. Burke, Pittsburgh, Pa.; Victor Hunt, Glen Cove, L. I.; Joseph Strachan, New York City; Lester G. Bennett, Lake Mahopac, N. Y.; Thomas McConnell, Chauncey, N. Y.; Casper Fred Weber, Rutherford, N. J.; B. A. Myers, Chagrin Falls, O.; James M. Adie, Boston, Mass.; Walter Davey, South Braintree, Mass.; Wm. Keith, South Hamilton, Mass.; William Shaw, Elkins Park, Pa.

AMONG THE GARDENERS

Ernest Grey has accepted the position of gardener to Mrs. Arthur Lee, Elkins, W. Va.

George Walker secured the position of gardener to Mrs. Stephen Leonard, East Hampton, L. I.

Martin Kuiper has accepted the position of superintendent to Frank B. Black, Mansfield, Ohio.

Harry Cartwright has been placed in charge of the Country Club of Detroit, Grosse Pointe Farms, Mich.

George Baker has accepted the position of superintendent on the Reginal Bix estate, Greenwich, Conn.

William I. Martin for forty years gardener on the Nathaniel T. Kidder estate, Milton, Mass., where he had charge of one of the most celebrated flower gardens and fruit orchards



A CARPET-LIKE lawn adds much to the value of a fine home. Ideal Power Mowers maintain such lawns at low cost by cutting them evenly and rolling them to velvety smoothness in one operation.

Your caretaker or an unskilled man at laborer's wages can do perfect work with an Ideal. He can cut from a half to a full acre an hour, trimming the borders closely. Contrast this with the cost of mowing, rolling and trimming your lawn by hand and you will readily see why an Ideal pays for itself so quickly.

We will be pleased to send you interesting literature and prices upon request.

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Dealers in all Principal Cities



Ideal Junior cuts a swath 22 inches wide. Capacity from 3 to 4 acres a day



Ideal 30" mower cuts a 30 inch swath and mows from 6 to 7 acres a day

IDEAL

Power Lawn Mowers

(25)

green house plants in Boston, died on March 2, following an attack of appendicitis. Mr. Martin was born in Bristol, England, about seventy years ago, and came to this country when quite a young man, after good training on prominent estates over there. For many years he was one of the largest and most successful exhibitors of plants and flowers at the shows of the Massachusetts Horticultural Society, when like David Allen, Wm. Robinson, C. M. Atkinson, James Cauley and other were in their prime.

INTERNATIONAL FLOWER SHOW

As this number goes to press, everything indicates that when the Flower Show opens its doors on March 12 it will present to the public a floral display that has so far been unsurpassed at the Grand Central Palace.

Competition will be keen in the classes of the big gardens as well as in the rose and

numerous other classes. The members of the Garden Club of America are manifesting lively interest in the classes of table decorations and in the miniature or model gardens. Nothing has been left undone by the various committees to assure the success of the 10th. International Flower Show. It will be fully reported in the April issue of the GARDENERS' CHRONICLE.

LOCAL SOCIETIES

SOUTHAMPTON HORT. SOCIETY

The sixteenth anniversary of the founding of this society was celebrated by a turkey supper, furnished by the ladies of the Presbyterian Church. A large number, over two hundred, attended and the whole affair

was a complete success. The members deserve credit for their arrangement, and certainly the ladies of the church are well entitled to all honor and praise for the efforts put forth by them to arrange and serve the abundance provided for the feast. Everybody seemed to be happy.

President George Campbell called the assembly together, calling upon Benjamin C. Palmer to ask the blessing, and the ladies of the church proceeded to serve the turkey.

After the feast, President Campbell again called upon Mr. Palmer, who was one of the charter members as well as the society's secretary for the first several years, to speak. Mr. Palmer spoke on "Reminiscences," telling how the society was thought out, and the thought carried into effect by Herbert W. Clarke, one of our first professional gardeners. He interested a few others and a meeting was held in January, 1907, in the carriage house of James L. Breese, at which sixteen gardeners were present. The second meeting, twenty-five in attendance, was held in a barrack of a room in Agawam Hall, the only place available at that time. There the society was formed, officers elected, and the Southampton Horticultural Society was in running order and ready for business. Later on they moved to more agreeable quarters in Odd Fellows' Hall, where they still hold forth. The other speakers were Stanley R. Candler, present financial secretary, and Mr. Marshall, a past president.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting was held in Greenwich, Connecticut, February 13. Some very good exhibits were shown. Edwin Beckett exhibited a very choice vase of Laddie carnations, receiving first prize and a cultural certificate. Second prize, vase of *Buddleia Asiatica*, went to William J. Sealey and third prize, vase of *Antirrhinum*, Torchlight, to Alex Smith. Other exhibits included vase of Laddie carnations, W. D. Robertson; vase of sweet peas, James Stuart; vase of calendula, W. D. Robertson; vase of stocks, Alex Smith; John Andrews received first in fruit for four varieties of apples.

Silver and bronze medals were awarded to those receiving highest score of points in both flower and vegetable exhibits during the past year. William Smith received first for flowers; H. F. Bulpitt, second. For vegetables, James Linane received first; H. F. Bulpitt, second. Silver and bronze medals will be given in both classes for exhibits during this year. Through the generosity of A. N. Pierson, Inc., and John H. Troy, the usual monthly prizes will be awarded again this year. The executive committee plans to have a lecture for every meeting of this year.

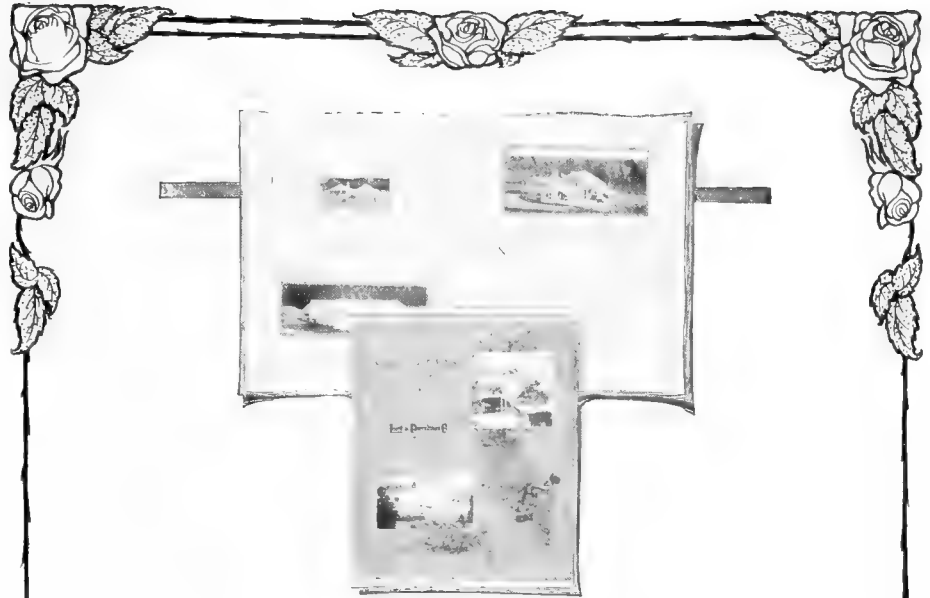
Mr. Underhill, of Boston, will give an illustrated lecture on, "Old New England Gardens," in May. The Garden Clubs of Greenwich, Rye, and Riverside are to be guests at this lecture.

A lecture on "Bees and Bee Keeping," was given by Mr. Vanderwarken. H. B. Reed, fruit expert, gave a very interesting talk on "Spraying of Insect Pests and Diseases of Fruits." Specimens of diseased fruits and bark were passed around to illustrate his topic. At the conclusion of business a social half hour was enjoyed.

A. KNEUKER, *Cor. Secy.*

NASSAU CO. HORT. SOCIETY

The monthly meeting of the above society was held in Glen Cove on February 14. Vice-president Thomas Scott occupied the chair. Peter Morrisson, of Glen



Of Special Interest To You Would-Be Greenhouse Possessors

With greenhouses, as with autos and most other things, there are a certain few that are favorites.

Year after year those same favorites have continued to be favorites. Such being the case, then, there must be certain very logical reasons for it.

Reasons that will appeal to you quite as they have to others.

Appreciating such, it's a wonder we hadn't thought long ago to bring these favorite greenhouses together and make a special little catalog of them.

However, we have done it now. Done it in a most attractive way

that am sure will appeal to you and your love of flowers and growing things.

Five favorites are shown, among which unless we are greatly mistaken, you will find just the greenhouse that best suits your needs and fits your pocketbook.

There are plenty of photos of both exteriors and interiors, besides plans and ample description.

So complete is it, that without any further ado, houses have been purchased directly from it.

Mayhap you will do the same.

You are most welcome to a copy of this new Glass Garden Catalog.

Lord & Burnham Co.

Builders of Greenhouses and Conservatories.

Irvington New York	New York 30 E. 42nd St.	Philadelphia Land Title Bldg.	Chicago Cont. Bank Bldg.
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Cove, was elected to active membership. William Cullen, William Milstead and James McCarthy judged the exhibits. Their decisions were: Six sprays of stocks, first, J. W. Everitt. A very fine vase of sweet peas (Rose Queen) exhibited by J. W. Everitt was awarded a cultural certificate. The Michell Seed House medals awarded for achievement in horticulture were presented to James McCarthy, Ben Sutherland, Charles Stango, Thomas Meech and Thomas Bell. William Sperling was in fine form in his talk on the advancement of Nassau County. If we were to believe all "Billy" tells, this must be the promised land. Fred Piper spoke about the Morristown Horticultural Society. Letters were received from Bobbink & At-

kins regarding the recent rose catalog they have issued, and from the secretary of the Chrysanthemum Society giving its definition of terminal spray as applied to single and hardy mums. Exhibits for March 14th meeting will be 12 white, 12 pink and 12 mixed carnations.

ARTHUR COOK, *Cor. Secy.*

ELBERON HORTICULTURAL SOC.

The above society held its regular monthly meeting March 5, President G. Masson occupying the chair. T. Clark, Charles Stout, Walter Lindhardt, John Koster and George Sodemann were elected to active membership. A fine attendance was on hand, with

a good delegation from Monmouth Horticultural Society. Some excellent exhibits were shown. The judges selected were: L. Kennedy, William Waite, and William Turner. The President introduced Thomas Head, who gave a very instructive and helpful essay on the National Association of Gardeners. W. Waite also spoke on the same subject, after which a general discussion was entered into by the society. The President spoke with regret of D. Gustafson, active member, leaving this section for a position on the Hudson. The April meeting will be a ladies' night when a good time is expected for all.

WILLIAM WILLIAMS, Secy.

HORTICULTURAL JOTTINGS

The General Federation of Women's Clubs is conducting a campaign for the observance of a National Garden Week, April 22 to 28, inclusive, which plan has received the personal approval of President Harding.

Programs may be secured by addressing Mrs. John D. Sherman, General Federation of Women's Clubs, 1734 N street, N. W., Washington, D. C.

Two large bouquets of flowers were found in Tut-ankh-Amen's tomb in the Valley of the Kings. This Egyptian monarch was placed in his funeral chamber thirty-five centuries ago and the doors were sealed. When an English explorer opened the tomb, he found the funeral flowers still intact.

Here, in truth are the flowers of yesterday. According to the cable dispatches, they were not arranged in wreaths or in any of the floral designs customary at modern funerals, but in the form of bouquets, such as might be carried by a woman.

An attempt is being made to coat these flowers with wax and preserve them for public exhibition. These funeral flowers are a touch of sentiment, proving how constant human nature is. With all the outward changes that have taken place in the affairs of man since Tut-ankh-Amen reigned, men and women have the same passions, the same hates, loves, and fears, the same hopes, ambitions, and desires. Nothing found in the tomb of the Valley of the Kings indicates that the basic motives of human nature have materially changed. Nor has its basic love of beauty.—N. Y. Evening Mail.

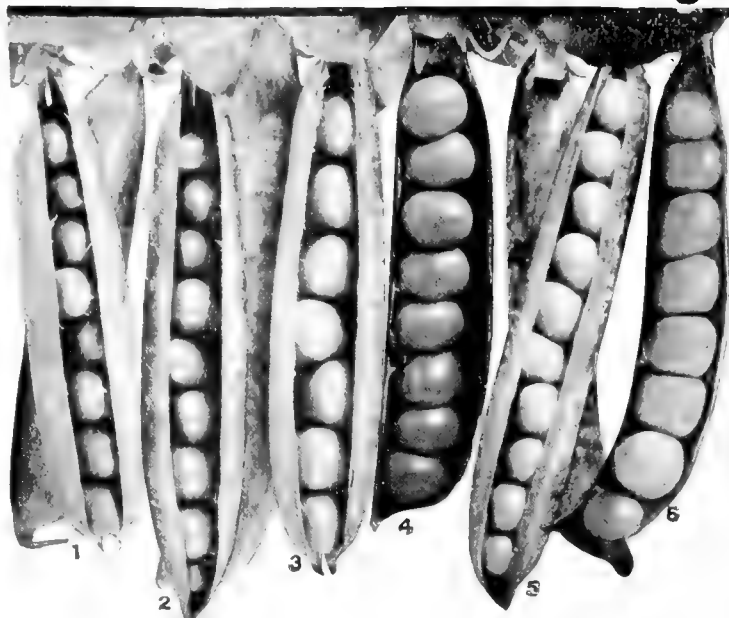
The fifth oldest known living thing on earth, and the third oldest in North America, is a giant cypress tree in what is known as the Edenborn Brake, in Winn parish, this State, according to Carlton F. Poole of the Louisiana State Convention Department.

The age of the tree has been placed at 2,500 years by Prof. Herman Schrenk of St. Louis, and other scientists who have examined it. According to records, it is exceeded in longevity only by the Santa Maria del Tule cypress, near Oaxaca, Mexico, 5,000 to 6,000 years old; the Dragon tree at Orotava, Island of Teneriffe, 4,500 years old, the Redwood tree, California, 4,000 years old, and the Baobab tree, Senegal, 4,000 years old.

The Edenborn cypress was budding into life when Jerusalem was taken by Nebuchadnezzar. It was a lusty young sprout when the battles of Marathon and Thermopylae were fought, when Assyria was at the apex of world dominion and when Rome was a village of mud roads and hovels. The tree was 600 years old when Christ was born in Bethlehem, a veteran when the Roman legions were withdrawn from Britain to leave the savage tribes of those islands to fight out their differences, and was more than 2,000 years old when Columbus sailed into the Atlantic to begin his voyage of discovery.

The tree was one of a number of its kind in a tract of pine timber purchased by William Edenborn some years ago and when logging began he refused to permit it and

GREEN PEAS from June till August!



Do You Know This Secret?

A bountiful succession of this toothsome delicacy is yours if you follow these simple directions

Plant this collection of 6 choice varieties all at once this Spring, just as soon as the frost is out of the ground and they will mature in the order named—producing a steady procession of big mouth-watering crops from about June 20th till late in August.

The reason for this is evident. Peas must develop their roots in cool weather and so are able to supply sufficient moisture to leaf, flower and pod, as they rapidly multiply under the summer sun. On the other hand late planted peas are almost always a disappointment, as every experienced gardener has reason to know.

Here are varieties

1. Schling's Pedigree Extra-Early. 2½ feet. The earliest Pea grown; large, well filled pods.
2. Gradus, or Prosperity. 3 feet. An early fine wrinkled Pea of delicious flavor.
3. Sutton's Excelsior. 1½ feet. The most productive of dwarf medium-early wrinkled Peas. Very sweet.

4. Dwarf Champion. 2½ feet. An enormous cropper. Broad pods, very sweet Peas.
5. Improved Telephone. 5 feet. Enormous pods, filled with Peas of the finest quality.
6. Heroine. 4 feet. Pods are large, deep green, somewhat curved; tender Peas of finest quality.

Special Offer

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| ½ lb. each of all 6 varieties, | } Free delivery within 300 miles of N. Y.; beyond, add 5 cents per lb. for postage. | |
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No. 1—Schling's Marvelous New Dahlia Zinnias—True aristocrats 6 to 7 inches across, like huge Decorative Dahlias. Marvelous blendings of pastel colors, rich mixture.....pkt. 50c

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No. 12—New Lilliput Poppy. A sensation, only 12 inches high, constantly in bloom. A lovely daybreak pink.....pkt. 25c

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three others almost as large to be felled, although the giant contains approximately 23,000 feet of lumber. It is peculiarly situated for one of its species, for while the cypress usually grows in swamps the Edenborn specimen stands in a hollow between hills.—*N. Y. Herald.*

One point about wild flowers is their wide-flung profusion. A garden flower claims seclusion; the wind is not welcomed in a garden but he is the rough-and-tumble playmate of every wild flower, and the level wheat fields ripple with laughter as he goes frolicking by.

Numberless as the stars are the wild flowers. Who has not brushed the gold from a million marguerites, their ranks closing behind you as though you had never passed that way? Nor does the fragile primrose know aught of scantiness. She pushes her pale petals to the surface, parting the leaves to take an early peep at the sun. She bedecks the woods and embankments and dapples the shade with her light. And what of the English bluebells? Fragrant, tapering bluebells so thickly beneath the beeches and oaks that it is quite impossible not to crush them as you walk through the woods in May. Another rare vision, too, when on a Spring evening the full moon sheds a bright sheen all over a field of buttercups. A vision of gold and silver, renewed and ever renewed in memory.

In the Highlands there is the wild beauty of the heather, splashing the hills and moors with its magenta blaze; masses of it surging at the base of gray-lichened boulders, wooing the coveys of furry-footed grouse to slant into its depths with downward curving wings.

Yet, it is sweet to stand quietly in a sheltered garden, with intimate flowers, named and natured, rising in orderly array at one's feet; yet sweeter still to push out into the open and revel in profusion.—*C. S. Monitor.*

French wine growers are tearing up their vines and planting the hillsides with potatoes and grain, according to a committee just returned from a survey of the principal grape regions. This is ascribed directly to the loss of markets in the United States and in Sweden, as well as the failure of access to German and Russian trade.

The growers declare their cellars cannot hold another million bottles, and are planning to organize a great sales co-operative society which will dispose of the stocks accumulated in the last five years at reasonable prices, enabling the industry to start over again, better calculated to comply with the world market next year.—*N. Y. Herald.*

WHY THE TOMATO WAS FORMERLY CONSIDERED POISONOUS

The Tomato, which in these days occupies such a prominent place in our food menus, was until comparatively recent years, believed to be poisonous. This was in a way natural, from the standpoint of the botanists, because they knew that the Tomato plant was really a member of the poisonous "deadly nightshade" family, as is also the familiar Irish potato.

This belief as to the poisonous nature of the Tomato was so prevalent that even after a few venturesome folk decided they must be good to eat, they took the precaution of stewing them first. When no harm resulted it was believed that the stewing process extracted the poison. But even when other more venturesome folk, who perhaps were so hungry they were willing to try anything, ate raw Tomatoes, without harmful result, it was a long time before the practice became common.

Before 1830 the Tomato was known as

Therefore It Hath Its Charm

Isn't it hard to quite understand how some people spend unstintingly for buildings and the "doing over" of their grounds, only to secure a regrettable effect of man-madness?

Everything has the look of having been just placed there. All nature's naturalness has been ruthlessly ironed out. In contrast, you at rare intervals run across a layout that is a delight in its utter frankness—its skillful adaptation to nature's own setting.

How it prompts a long breath and a sigh of contentment.

Therefore, this greenhouse has its charm.

It just fits in the picture, as it were.

You can well imagine the satisfaction it was to do our bit in securing this result for Dr. J. H. Lancashire on his Massachusetts woodland-crested estate, at Manchester-by-the-Sea.

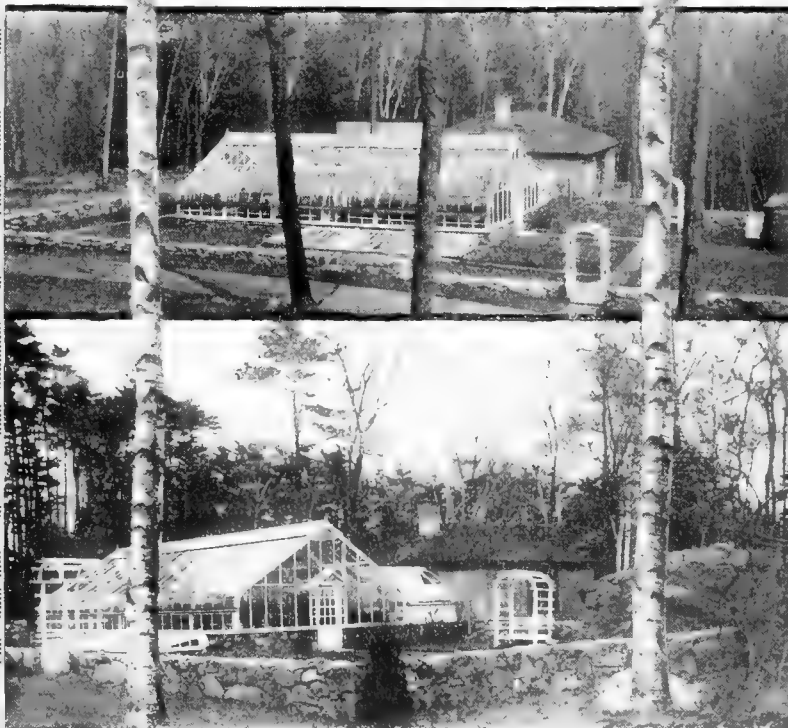
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the "love apple" and the plants were placed in gardens for decorative purposes only. The fruit was then no larger than a small Plum or large Cherry. Tomatoes of the size now popular are the result of cultivation. The use of Tomatoes as food did not grow until after Civil War times. Today, in the United States alone, some 300,000 acres are devoted to Tomatoes, and the annual crop, most of which is canned or made into catsup, amounts to almost one million tons. It is the third in value of the vegetable crops. *(Philadelphia Letter)*

THE LACE FLY

The Rhododendron bug or lace fly, *Stephanitis rhododendri*, was first found on our native *Rhododendron maximum*, but infests both hemispheres. These small insects attack all the Rhododendrons with the exception of *R. Smirnowii*, which has leaves the under part of which are covered with a felt-like substance that repels the insects. The Mountain Laurel and other *Kalmias* suffer from attacks of the pest, and the flowering quinces are occasionally infested.

In the eastern states this pest has two broods. The first one will appear just before the flowers of the Rhododendrons and *Kalmias* open, and the second about the end of August. Plants infested by this insect can be readily determined by the discoloration of their foliage.

In the dormant stage (November to beginning of May) the under side of the leaves are dotted with coffee-brown spots along the main mid-rib of the leaf, which indicates the presence of the eggs from the second brood, which will hatch just before the flowers open.

During the Summer months the leaves are covered with a sticky substance, and numerous black shiny spots which are the excretions of the insects present. The upper surface becomes dull green, and spotted a greenish yellow throughout. Plants which have this appearance are usually badly infested. In extreme cases of infestation the Rhododendrons and *Kalmias* will drop their foliage early in the Fall, with the exception of the leaves produced during the Summer's growth, which will be one-third the normal size and are usually not sufficient to keep the plants alive after another year's injury.

Rhododendrons and *Kalmias* which grow in an open, sunny situation are mostly attacked by the fly, whereas the ones which grow near the water, on a northern slope, or shaded by hemlocks or other tall evergreens from the hot sun, are very seldom injured.

In the early stages of life the insects have no wings, but have the appearance of lice. They usually congregate in small numbers or crawl slowly over the under surface.

After two or three weeks wings begin to appear, and at a touch on the branches many insects will fly away. Then your spraying will have little or no results. The time to spray Rhododendrons is just before the flowers burst open. Do not delay until the *Kalmia* flowers open, for that will be too late to catch the first brood. The second application must be made about the middle of August. The main point is to have as much pressure as possible and the spray must be applied thoroughly to the under side of the leaves. A hand or a power nozzle is the best; it can be attached to a four- or six-foot extension rod.

Remember the following:

First, this is a sucking insect. It must be hit hard with the spray, the more force the better.

Second, always spray on the under side of the leaves.

Third, use a power nozzle with a forty-five degree angle, attached to a six-foot rod. —*Horticulture*.



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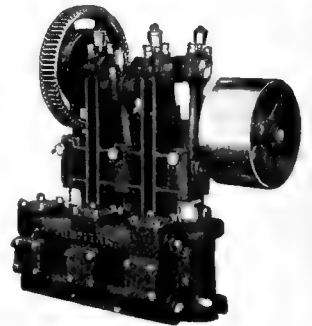
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MOUNT ATLAS SILVER CEDAR

For a position where a single specimen of an uncommon evergreen tree is wanted, the recommendation of the Mount Atlas Silver Cedar (*Cedrus Atlantica glauca*) is sure to meet with approval. Although having the appearance when small of being apparently sparse of branches and foliage, it will attain to its compact and shapely habit as it grows older, and to which we may add the pleasing silvery blue of the needles. The latter characteristic is admired and preferred by many to the more pronounced blue of the Koster's Spruce and it has the additional advantage of being a far less common tree.

The arrangement of the leaves on the Mount Atlas Cedar in tufts or clusters (fasciculate) distinguishes it from such common evergreens as Firs and Spruces, which have the same conical habit of growth, but it resembles the foliage of the Larch.

The prospective purchaser may not be aware that *Cedrus Atlantica glauca* is a true Cedar, cone bearing, and should not be confused with the species of *Juniperus* which are also known as Cedars (*J. virginiana*, the Red Cedar, being the most notable example) nor with the *Retinisporas* or *Chamaecyparis*, which are also referred to as Cedars.

There is no question of the hardiness of this blue form of the *Cedrus atlantica*, it being regarded as even hardier than the type, so the collector may plant both with impunity.

Another species in this form might well be included to make a pleasing group, for although slightly less hardy it will do well if planted on high ground. For Southern locations we would also urge including in the group *C. Deodara* (not hardy in the North) and thus complete an interesting collection of the three species of this genus of true Cedars. Seed, sown in Spring, is the usual method of propagation, although grafting is necessary with the varieties.

Perhaps we should caution against pruning these Cedars, except for the removal of interior interfering branches, for if the leader is removed it is difficult to make another and the tree will not assume the symmetry of a single shaft.—*Florists' Exchange*.

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DAFFODIL DAYS

February smiled. And lo!—
Down the garden valleys blow
Yellow frills
Of Daffodils;
Fluttering in windy spaces;
Curtsying in sheltered places.
Sunlight shed through naked trees
Has no fairer glow than these
Precious hostages of Spring,
Set with tall leaves in a ring—
Flame-like blades of shining green
Drawn to guard each golden queen.

C. S. MONITOR

MARCH WIND

Rough courier that speaks the swift advance
Of lifting hyacinths and tulip tide;
And warming earth that shows the thin green
lance
Of tender grass on meadows rolling wide.
Vanguard of force to clean the drab terrain
Of Winter's crowding flotsam, so that out
The willow trees will drip with silver rain,
Through the wet witchery of an April
noon.

We hear it roaring down the country-side,
And through the city as the shutters
swing;
A shouting envoy and a bustling guide,
To blaze a pathway for the timid Spring.

C. S. MONITOR.

What can be more delicious than a morn-
ing dawning through your open windows, to
the sound of innumerable birds, while the
shadows of branches and leaves sway to
and fro along the wall, or spread new pat-
terns on the floor, wavering with perpetual
change! *Becher.*

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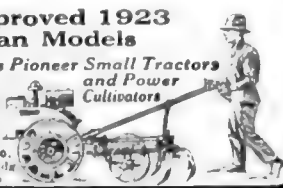
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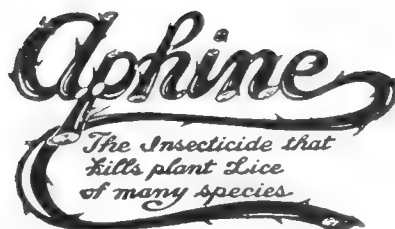
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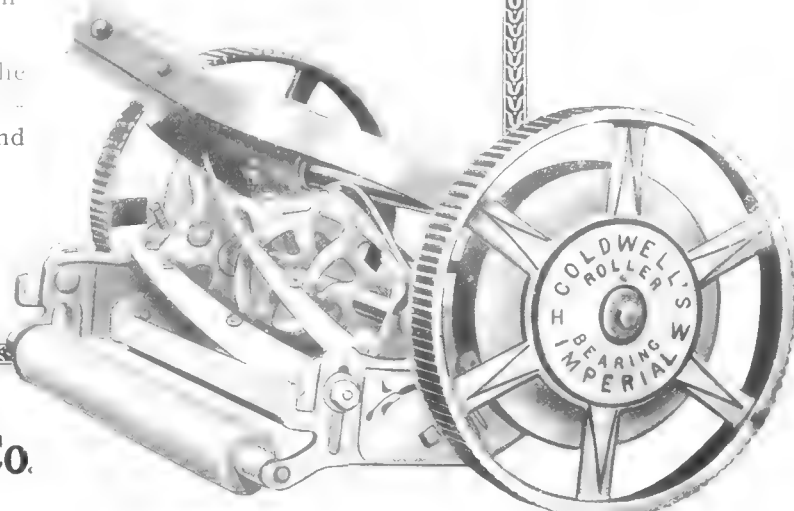
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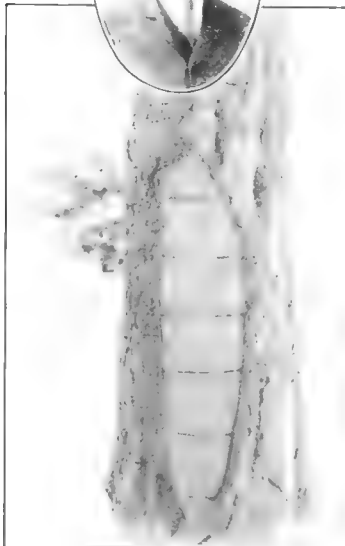


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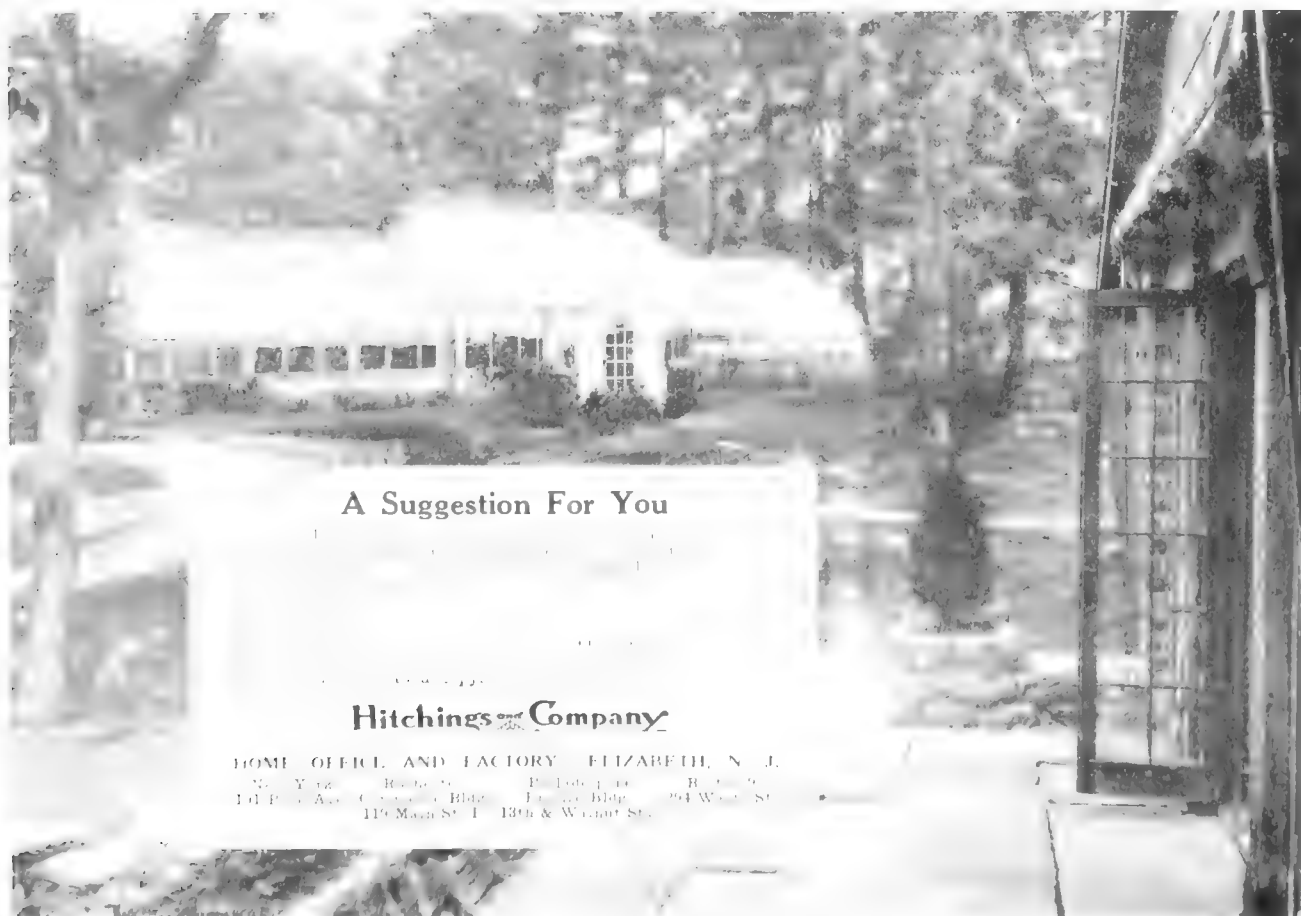
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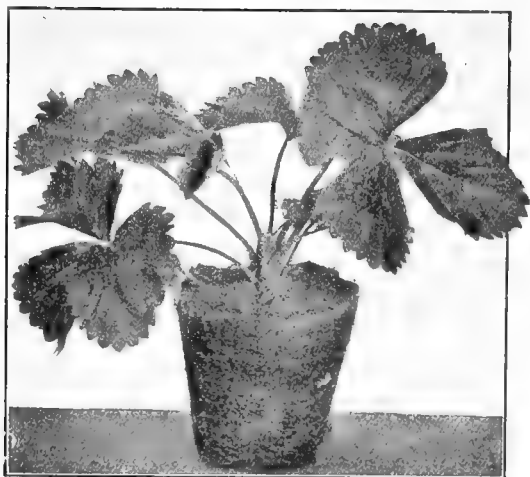
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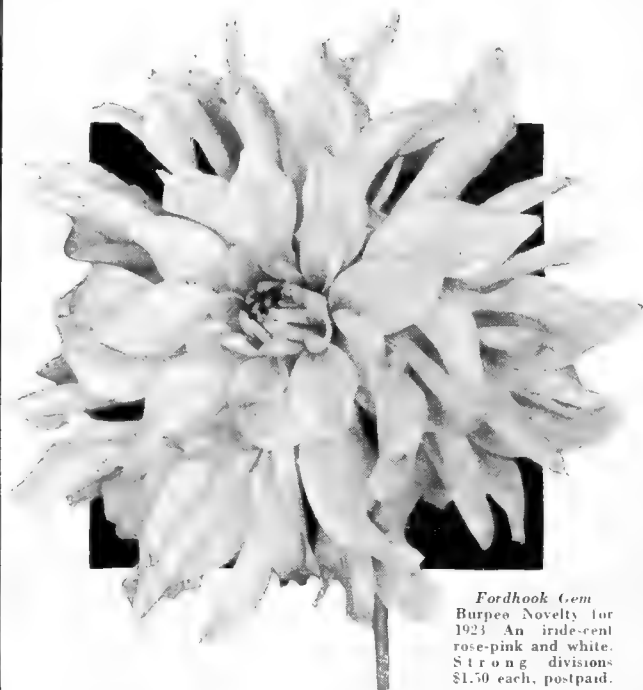
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

APRIL, 1923

No. 4

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THE New York flower show this Spring, in spite of its unusually early date, proved to be an excellent one, the exhibits being well varied and attractive. The gardens were as usual the cynosure of all eyes; they certainly entail a great amount of study as well as forethought and skill. It was really remarkable that so much well grown, finely flowered and tastefully arranged material could be gotten together at so early a date when the nature of the past—or rather present—Winter, the fuel situation, and other factors are considered. The Spanish garden of Julius Roehrs Co. was quite unique, and a most decided breaking away from existing types, the award of the gold medals of the Architectural Club, and the Garden Club of America to this exhibit made it the most discussed and criticised garden in the show.

* * *

I must admit, however, that the garden which appealed to me the most was that of the F. R. Pierson Co. This was eminently practical and quite possible of duplication in the East; the material used was well placed and, better still, the various plants were plainly labelled. The rock garden of Bobbink and Atkins was well conceived and most interesting; here again all plants were named, thus making it educational. The Azalea Garden from the last named firm was very showy and proved that there are still some Azaleas in America. The rockery of the Julius Roehrs Co. was also nicely done. The Bulb Garden of John Scheepers was very charming and the color arrangement exquisite. I had hoped to see two or three rose gardens, however, the one from Cromwell Garden could hardly have been improved upon, and the effect produced by using not only half a dozen varieties, was vastly better than if a much larger number had been planted.

* * *

There was an evident tendency to overcrowd the beautiful arrangements of greenhouse flowering plants from Mrs. Payne Whitney, and W. B. Thompson, half the number of plants would have produced a better effect. I was glad to note how popular *Buddleia Asiatica*, introduced about eleven years ago by Farquhars' of Boston, had become. Both florists and professional gardeners are now recognizing its decorative value. *Clarkia* "Salmon Queen," a lovely annual for pot culture as well as the garden, and one possessing splendid lasting qualities as a cut flower, was noted in one group, also well flowered plants of the single annual *Chrysanthemums*.

There was a wonderful array of Orchids. These were, however, fearfully crowded, and one or two of the largest groups were very poorly arranged. The *Cymbidiums* were easily the star features in this department. I think I noticed a name on the beautiful *Brasso-Lælio-Cattleya*, "Snowdon," from A. N. Cooley of Pittsfield, Mass., and it is just possible that one or two others had names, but not a solitary label appeared on the bulk of the groups. This held true throughout the entire exhibition.

* * *

I presume that flower shows are held to satisfy and encourage the love of people for flowers, and particularly to make such exhibitions educational. They utterly fail in this latter most essential particular when so few plants and flowers are named as in New York. Personally I think the policy of the Massachusetts Horticultural Society which insists on all exhibits being named, and the refusal of awards to any plants and flowers not plainly labelled, might very well be adopted in New York. Small inconspicuous cards either printed, or plainly written in ink, should be made mandatory. If this is not done, this greatest of our Spring flower shows will fail in its full mission.

* * *

The cut flower displays at New York are always excellent and this year were fully equal to those of former years. The sweet pea display of W. Atlee Burpee & Co. was as usual a splendid one, being also most artistically arranged, and free from the abominable draperies which disfigured the first and second prize groups of cut roses. My own personal opinion was that the F. R. Pierson Co. display, everything considered, was the best of the three. I may be old-fashioned but I am opposed to giving premiums to lavish displays of ribbons, chiffon, or even colored burlap and tissue paper. Amongst the new roses America, Commonwealth, Mrs. Harding, and Souv. de Claudius Pernet, all had their admirers. The last named was the centre of attraction for amateurs, as it is proving to be a good garden rose, and its color reminds one very strongly of that beautiful variety, Marechal Neil, by long odds the finest climbing yellow we have today but, unfortunately, too tender for our cold eastern states.

* * *

It is always interesting to note what are commonly classed as "spring flowers." A nice assortment of these appeared, especially amongst the table decorative material. Amongst the forced annuals and bulbs used I noticed

Dichæus cœrulea, pink *Clarkia*, *Gypsophila elegans*, pink *Saponaria*, *Statice Suworowi*, *Leptosyne maritima*, *Arc-totis grandis*, blue and white *Lupines*, *Larkspur*, *Nemesia*, *Schizanthus*, *Stocks* single, *Sweet Peas*, and *Centaurea cyanus*, all of which are also excellent outdoors. Bulbous flowers apart from *Narcissi* consisted mainly of Dutch and Spanish *Iris*, *Ranunculus*, *Ixias*, *Sparaxis*, and colored *Freessias*. A vase of White *Watsonias* was noted also a few of the large flowered *Gladioli*, which looked as though they might have been grown in Florida. Since the advent of Quarantine 37 we see comparatively few of the miscellaneous Dutch bulbs such as *Babianas*, *Tritonias*, *Ixias*, *Ranunculus*, *Anemones*, and *Sparaxis*, bulbous *Iris*, and the small flowered *Gladioli* are also comparatively scarce and high priced.

Speaking of *Watsonias*, these lovely South African bulbous plants have been tremendously improved by hybridization of late years in Florida, California, and Australia. E. H. Wilson during his recent world tour found a wonderful race of hybrids in Melbourne, plants growing six feet in height and including about every imaginable color. Splendid hybrids have also been produced in the warmer parts of our own country. I have found that *Watsonias* flower splendidly in pots, and will also succeed quite well outdoors. I think they should do finely in benches, and are well worth careful consideration from commercial growers. In Spring groups of plants they should prove extremely useful, and seeing that a goodly supply of bulbs is available in both Florida and California those who want something new in their gardens might well try them. The colors most in evidence are pure white and peach pink. These have well branched spikes carrying fifty to seventy-five flowers each.

It seems strange that so many amateurs and not a few practical gardeners are still of the opinion that members of the *Primula* family are of doubtful hardiness in our northern Atlantic states. If given conditions at all congenial they are among the most dependable and charming of hardy plants. They will grow and flower well in full sunshine, but are most at home under the shade of trees, (elms excepted). In shady situations the white, yellow, and gold laced *Polyanthus* thrive amazingly as do the English primroses. At the late New York show I was interested to find in one of the gardens *Polyanthus* labelled "English Primroses," and in the same lovely garden "St. Bridget" in lieu of *St. Brigid Anemones*. In addition to the *Polyanthus* and English Primrose there are many other hardy *Primulas*. The following have done especially well in the vicinity of Boston: *P. frondosa* a lovely little sort with silvery foliage and rosy lilac flowers, *P. pulverulenta*, a vigorous sort succeeding particularly well in moist locations where its rich, ruby crimson spikes are very effective; in suitable locations it will reproduce itself from seed very abundantly. *P. Japonica* is a good rock plant, it comes in a wide range of colors, and is very much at home along the margin of ponds or streams. *P. Beesiana* is a strong grower with varying shades of purple flowers and a yellow eye. *P. Bulleyana* produces buff, orange, and apricot colored flowers, very distinct from all other *Primulas* and is the latest bloomer in the whole family. A pretty little dwarf growing variety is *P. rosea floribunda*, flowers are bright rose in color. *P. Sikkimensis* is commonly called the "Himalayan Cowslip" the primrose yellow flowers are produced in clusters on long scapes. *P. Cashmeriana* and *P. denticulata* have always been the first of our *Primulas* to flower, not infrequently as early as the middle of April near Boston. They grow eighteen inches in height and their globe shaped heads of flowers vary in color from pure

white to purple and violet. The foregoing *Primulas* have proven quite hardy, and but few have died out. It is always a good plan to raise seedlings of one or more varieties each Spring and while *Primulas* will withstand very low temperatures, they should be given a mulch of leaves as Winter sets in and it is well not to remove this too hastily in Spring.

Lilacs are unquestionably the finest of all our flowering shrubs. They flower early and abundantly each year; hold their foliage late; are absolutely hardy, and are clean subjects, as with the exception of scale, they are practically immune from insect attacks. The San Jose and other scales are easily controlled by a dormant spray of either lime-sulphur, or one of the several soluble oils. For the wonderful improvement in, and popularity of lilacs, we are indebted to one of the world's greatest horticultural hybridizers, Lemoine of Nancy in France. M. Lemoine's nursery was close to the firing line and was frequently shelled by the Germans, but terribly crippled and hampered as he was, he continued the work of hybridization, only to be met at the close of the world war by that cruel and utterly unjustifiable embargo, the notorious Quarantine 37.

There are two hundred or more varieties of Lilacs in cultivation in America today, the bulk of them raised by Lemoine. We are devoutly grateful that we had them before the F. H. B. started to function. Out of a very long list of hybrid Lilacs I would recommend the following as excellent: *Marie Le Graye*, still the best single white; *Mme. Lemoine*, a superb double white; another lovely double white is *Mme. Casimir Perier*. In the dark purple class *Souvenir de L. Spaeth* is still hard to beat. The most exquisite pink of all is unquestionably *Macrostachya*; another good pink is *Mme. Francisque Morel*. A grand single blue is *President Grevy*; *Michael Buchner* is a good double pale lilac colored variety. *Lucie Balter* is a fine single, with old rose colored flowers. *Senator Voland* has big trusses of single reddish color. A striking deep red double is *Charles Joly*.

Apart from the named hybrids of *Syringa vulgaris* already listed above, everyone should plant some of the species. *S. Rothomagensis* the Rouen lilac, *S. Persica* and *S. Persica alba*, the graceful purple and white Persian lilacs, the very graceful *S. pubescens* are all valuable; also *S. Josikæa*, the Hungarian lilac, is valuable as a late bloomer. Latest of all comes *S. Japonica*, the Japanese tree lilac of tree-like form with handsome glossy leaves and big plumes of creamy white flowers produced after all other lilacs have passed.

It is most encouraging to learn that an extensive and comprehensive investigation of the methods and activities of the Federal Horticultural Board, including their efficiency and general methods, and the best methods to adopt to effect any necessary changes will be undertaken by the Chamber of Commerce of the United States, if a request addressed to it by the Merchants' Association of New York receives favorable consideration. Several months' study of the autocratic F. H. B. and its methods, by a special committee of nine gentlemen has made possible this most refreshing report. Every true lover of horticulture in its truest and broadest sense will fervently hope that the committee's recommendations may be favorably received, and that the comprehensive study asked for may materialize. I have long thought that if we had only possessed a great Central Chamber of Horticulture, such as Great Britain possesses, the scientific theorists comprising the Federal Horticultural Board would never have dared to attempt to put into force a virtual embargo against practically all plant products.

In the Garden and in the Greenhouse

GEORGE F. STEWART

WITH the advent of this season of the year, late April and early May, the garden will be beginning to be clothed with all its Spring beauty—suggesting many thoughts to the observant mind. I see, in plant-life and action, parables or illustrations of some of the old Bible teachings. After the long Winter sleep we have a resurrection, and then the great truth that it takes death to give life. Dead and decayed vegetation feeding and giving life to the flowers and foliage of the coming season. A verse written by some poet—I do not know who, comes to mind. I do not even know if I quote it correctly, but it has stuck to me for years, after, no doubt, reading it somewhere.

Life evermore is fed by death,
In earth and sea and sky
Before a rose can breathe a breath,
Something must die.

If any of my literary readers know the author, and the poem, if it is a poem, I should like to know more of it and who the poet is.

Everywhere the gardener turns at this season work in many forms confronts him. A cool and calm mind is a great gift to those who possess it. The young gardener who has been fortunate enough to secure the management of an estate may be full of life, energy and enthusiasm, which, if not kept in control, may lead him into deep waters. However, we all make mistakes so let us profit by them.

If there is any belated work on the lawns to be done, let it be pushed to a finish quickly. Grass seed, if sown without delay, will germinate quickly at this season, especially if we get an occasional warm shower. If there comes a dry spell, watering with a fine sprinkler will be necessary on newly seeded lawns. After it is well up a good rolling will help to firm the roots. Careful attention given to a lawn the first season generally determines what it will be in after years. To have it in first-class condition weeding must be resorted to, as no matter how carefully it has been cultivated and made, previous to seeding, there will always be more or less weeds to annoy one.

Cabbages, cauliflowers, and Brussel sprouts that were started early may now be planted out. In the cultivation of these, and all plants of the Brassica family, newly broken up grass land is best to plant them in. They are far less liable to clubroot. They like a deep, rich, well cultivated piece of land to grow in, and plenty of room to develop each plant. Two feet between each plant, and three feet between the rows, is about right, although they may be grown much closer if land is scarce, and one has plenty of time to feed them well with liquid and other manures. We once grew, for experiment, thirty-six nice medium sized heads of cauliflower on a piece of ground six feet by six. They, however, were fed heavy with liquid manure until the heads formed. Firm planting is in order; for these plants also care should be exercised that the roots are well down into the soil.

There is yet time to sow and get a good crop of onions although they are better when planted much earlier. Enrich the land well for this crop and tread and firm the ground before sowing the seed. The leek is one of the healthiest of vegetables. A deep, rich soil is what they require. They are better if trench grown so as to have a better chance to blanch. Dig a trench at least fifteen inches deep and, after it is finished, loosen up and manure

the bottom heavily, and cover with a little loam, as it is safer to plant the young plants in soil not so rich, having the roots gradually reach the more heavily fertilized part.

Peas are probably the greatest favorite of all vegetables and they should get good care so as to secure a good crop. They have been cultivated since before the time of Christ, and are known botanically as (*Pisum sativum*). Peas like a good deep rich soil, but manure that is used for them should be well decayed. One of the best ways to plant peas, as we have found, is to plough out a good deep trench, and manure it well in the bottom, covering the manured part with a few inches of soil that has been manured the previous season. Sow the seeds on top of that, covering them about two inches. As the young plant grows the roots gradually penetrate the manured part as they gain vigor. We have seen sowings spoiled by sowing the seed too near the manure especially if it was not well decayed. Peas also like land that has been well limed or has a mixture of chalk in it. A cool steady climate is best for them, and those who live close to sea shore can have a much longer season of peas than those of us who live further inland.

Get in parsnips as soon as the ground is prepared for them. If one has the time the best way to grow them, after the ground has been prepared, is to use a good thick dibble about three feet long and bore holes in the prepared ground about six to eight inches apart. Fill these holes with fine loam, or sand, and sow a pinch of seed on the top of each hole. After the plants are well started, thin them out to a single plant. This method ensures a good long straight root. At one time parsnips were recommended as a substitute for potatoes, but, of course, that fell flat, as the flavor of the potato is, I believe, more popular than that of the parsnip. Deep rich soil, free from stones, rather sandy in texture is best for them. The modern name is *Pastinaca sativa*; older Botanists placed it under *Peucedanum sativum*.

Stakes may be placed in position for pole beans and by the first of May, a sowing of dwarf beans may risked in a warm sheltered spot outdoors. If a late frost occurs a newspaper placed over the row will, we have found, generally save them. It does not take long to cover them, and if a small stone is placed on each corner of the sheet, there is not much danger of the wind blowing it away. See that the paper does not touch the top of the small plants, as if it does, they are about as certain of being nipped, as if they were uncovered.

A sowing of early corn may also be tried. We have saved the hills from a late frost by covering them with a flower pot. A well enriched hillside, sloping south is the safest to plant early corn on. For flavor it is hard to beat the various forms of Bantam.

Keep up successive sowings of beets, carrots, and lettuce. The main crop of potatoes can be planted any time in May. New land is always advocated for them, but we gave them two years on the same piece of ground a year or two ago, and the second year we doubled the yield. We used a regular commercial potato fertilizer and no barnyard manure.

Fall blooming plants in the herbaceous border can be overhauled at this time if they require it. The plant should be completely dug out of the ground and the space for it manured and limed. Select the best part of the crown to replant—merely cutting around a few pieces off the edges of the crown is not good gardening. There

are a few annuals that are better if sown where they are intended to grow; *Lavatera*, the poppy family, *Alyssum*, etc., any good catalogue will tell one which are sensitive to the roots being disturbed. We have had very good success by filling small pots with soil, sowing a pinch of seed in the middle of each pot and thinning out after they are well up. We place the pots in a cold frame, removing the sash when weather allows. By this method they come along quite naturally, and they can be planted in their flowering position before they get too well rooted.

Get all plants of Foxglove (*Digitalis*), Sweet Williams, and other plants that require the same treatment, into their flowering position without delay.

About the middle of April we always plant our first batch of gladioli. These we find are of the most valuable cut flowers, especially the *Primulinus* hybrids. They are, to my mind, far more decorative than the *gandavensis* type. Cross breeders of this valuable flower, in their eagerness after size, and departure from distinct colors, are in my opinion destroying their artistic effect, when it comes to the arrangement of these flowers. We find that a planting every three weeks up to about July 18 gives a good steady supply of flowers until frost. Small bulbets of the *Primulinus* type, sown in a drill, like seed, flower splendidly all through the Fall. We plant gladiolus bulbs six inches deep. They like a heavy coating of lime in the soil. *Montbretias* are also very fine cut flowers but they are not quite hardy around here. We have found the best way to handle them is in a frame, where they can be protected somewhat in Winter. When they get overcrowded lift them and replant. Botanically they are placed under *Tritoma*.

Antirrhinums that have been well hardened off, can now be planted in their flowering quarters. A little frost does them no harm.

Canterbury Bells (*Campanula medium*) may now be sown for next year, also *Campanula pyramidalis*.

Another batch of late flowering China Asters may also be sown at this time. Sow them on top of sphagnum moss, pressing the seeds into it and in this way, we find they germinate much more freely. We would again draw attention to the single asters. "Southcote Beauty" is preferred by many, especially those that have had their artistic sense trained, to the large double flowered type. We question sometimes if much of our cross breeding after large double flowers is progressive, or retrogressive.

To many, now that the Spring flower show season and Easter is past, the grand climax, so to speak, of the plant end of greenhouse work has passed, and from now on visions of what we have in mind for the next season will be rising before us. Here again the value of keeping daily notes will be proved, as comparison can be made of how early or how late certain plants flowered. Forcing with extra heat, to get a given plant in flower for a certain date, we have always found bad for the lasting quality of the flowers, and the constitution of the plant is very often weakened. We have always found it better to retard the flowering period, after the flowers show signs of opening in a lower temperature with a light shade over the plant. It is very disheartening to a conscientious judge at a flower show, to see a plant, or vase of flowers, go to pieces soon after a decision has been made, causing thereby much ill feeling on the part of other exhibitors in the same class.

Pot all late March and early April flowered hardwood plants as soon as the tips of the shoots show signs of starting into growth. As I said in last year's notes, I have proved to my own satisfaction, that pruning the plants into shape is better if done just after the newly potted plants are commencing to grip the new compost. Never make a large shift to this class of plants. I saw

a batch of *Azalias* quite recently, where the receptacle was about as much in diameter as the plants. Such a condition I have never heard recommended as good culture. Personally I can never avoid looking at the pots, no matter how well flowered the plants are. There is a fine old veteran plantsman I know, who every second year takes its hard wood plants out of their pots and plants them out all Summer in a specially prepared bed. I asked him once how he managed to keep them in bounds at the roots. He told me that the peat bed in which he planted them was very friable and sandy, and he just gave them a good shaking and there was nothing left but the roots. They were very large plants and he had kept them in the same size tubs for many years. After potting, he kept them a little close for a week or ten days and then transferred them to a cool pit until they were wanted to flower at various periods during the late Spring.

In the rush of Spring work, do not forget to spread out and work over the soil that is intended for benching carnations and roses later on. The carnation requires a much lighter soil than the rose, and in mixing each batch, keep this in mind, also that the former resents the use of green manure. It should be well decayed before the plants are planted in it. The rose in our experience is not so sensitive to the use of fresh material from the cow barn, even when a good dressing of bone meal is used along with it. Expose the soil for each of them to the air and sunshine, as it absorbs more plant food from the atmosphere, beneficial to the plants, which is not so easy to add artificially. Deep wide compost heaps in my opinion is not the best method of storing soil, the middle of them is too likely to get into a dead inert condition, owing to not being exposed to air and sunshine.

Calceolarias will by the end of April need to be thought of, that is, if large specimens are the object in view for next year. The herbaceous type always comes through the hot months better, if nice sturdy small plants are established in $3\frac{1}{2}$ in. pots by the first of July. These early sown plants quite often in the early Fall will set flower buds, but if they are pinched off, about a week after they receive a potting, will break quite freely and can be moved along until a twelve-inch pot is reached before they cease growing. Under this treatment if they receive a compost, such as we advised in last year's notes, with the usual conditions under which *calceolarias* are grown, plants three feet in diameter can be had in about one year from seed. Nearly all seed houses of reputation have good strains of the herbaceous *calceolaria*.

The shrubby type which we see quite commonly around the East, are best grown into large specimens from cuttings rooted in April. They will flower as small plants in June, which will do them no harm. These if kept in a shady position and only watered when they show signs of wilting during the hot months, even if they do not look very promising by the middle of September, can then be potted along from the small pots. They will break all over the shrubby stems and these breaks can be pinched several times during the Winter a few days after they receive a shift, until from six to eight weeks before they are wanted to flower; eight weeks early in the year, reducing to six as the Spring advances. These notes are written for those who desire large plants of both kinds of *calceolarias*. Small plants of both types for mass decoration may be sown and rooted very much later in the season.

Chrysanthemum lovers are now watching their young stock with care, moving them along until their flowering pots are reached. Although they enjoy plenty of plant food, it can be very easily overdone in the early stages of growth. Bench grown stock on the average private

estate, is not so useful as that grown in pots. These can only be used as cut flowers, whereas the pot plants, grown to a single flower, may be used in a greater variety of ways when it comes to grouping plants, and very often after they have done duty in a decoration they are still there to use for vase work. The bush plants are now laying the foundation which determines their future size and shape. Pinch them as evenly as possible which will make it all the easier when the time arrives for their final training.

Young carnation plants that are to be grown in pots until the benches are available, may now be placed in a cold frame. Lift off the sash when weather permits, and pinch them as soon as there is any indication of a flower bud. A clean cut through the stem is better than breaking with the fingers. Field grown plants may be planted out by the first of May if weather is at all normal, and they have been grown cool and sturdy. I personally do not favor field grown plants for a private estate.

Young roses will have been secured by this date. They ought to have a good position, and the best of care that it is possible to give them.

The Fall sown cyclamen plants, to obtain such plants as I saw at the New York show, need all the love and cultural skill which that popular plant has brought forth in recent years, bestowed upon them. A special article by those excellent growers in *THE CHRONICLE* would be very profitable to us all, provided every detail were given.

Early gloxinias will now be better to have a little assistance towards flower production. Stimulate them to that end by applications of cow manure water and soft coal soot. Keep it away from the foliage which is easily disfigured by water in any form. However, until gloxinias expand their flowers, abundance of moisture is necessary in the compartment they are grown in, to bring out their full development. In the tropical house, as much space as can be allowed for each plant from now on, should be the aim of the grower. Later on when plants are set outdoors, another house may be utilized for these plants. Overcrowding mars the beauty of their foliage. Floors, and the benches between the pots should be sprinkled several times a day, and when the weather gets tropical outdoors abundance of air given.

Don't forget to have the *Primulas* and *Cinerarias* sown by the end of April. A later sowing of *Cinerarias* may be necessary, also of *Primula malacoides*. The plants of this *Primula* at the New York show were the finest for culture which I have seen equaled only once, and the strain at that time was very inferior to the New York plants.

Orchids should not be coddled in too warm quarters after this season of the year. They all delight in plenty of pure air, even the most tropical, and advantage should be taken of the weather outdoors, when it is most favorable, to see that the structures they are grown in have the atmosphere conditions suitable to the different genera. From my experience with orchids, they all, in their growing season, delight in plenty of moisture, especially in the atmosphere, watering at the roots should be thoroughly done when any is applied, and before any more is given, they may be allowed to be a little on the dry side. Sometimes it is a little deceiving for the compost may look dry on top, but if examined a little below the surface, will be found to be quite moist. Watering is learned by experience and almost becomes an instinct.

The fruit houses are at various stages of development. The very early forced fruits, such as grapes, peaches and nectarines, are ripening with some, no doubt. Syringing must stop until the fruit is harvested, use judgment about the condition of moisture in the borders, rather on the dry side as the time approaches for gathering, and have

plenty of top and bottom air when the weather is at all favorable. A little extra fire heat, if a raw biting day prevents airing, as one can do on a warm Spring day may counteract to some degree the conditions outdoors.

Let the late fruit houses come along naturally without any forcing. Rub off all extra buds on the spurs as soon as the strongest can be seen. Be in no hurry about tying down the shoots. If there is plenty of head room above the wires which every grape house ought to have, let the weight of the bunch do that work, and there will be no loss of shoots by snapping, which is often caused by premature tying into the supposed position.

We have had a very trying Winter, in which many of our calculations and theories have been somewhat upset. Let us be certain to profit by it.

NEWCOMERS IN OLD GARDENS

ALTHOUGH the Blue Lace Flower has been catalogued sparingly for several years, it is still a novelty and is seen in only a few gardens as yet. There have been misconceptions about this annual. It has been spoken of, for example, as a form of Queen Anne's Lace, which grows wild in the fields, but in truth is an entirely different plant, coming from Australia, and bearing the name of *Didiscus cœrulea*, writes E. I. Farrington in *The Christian Science Monitor*. Moreover, it has been known to botanists for many years, but did not win favor with gardeners until introduced by a New York florist, who surrounded it with a mild mystery at first and thus excited public interest. Old as it is, therefore, it is yet a novelty and an attractive flower, which is especially good for cutting. The amateur should remember, however, that the seeds are rather slow to germinate. Starting them in boxes in the house in April is the best plan, although, if given careful attention, they can be sown in seed beds outside when danger of frost is over. Barely cover the seeds with soil and give them two weeks to sprout.

The old-fashioned sunflowers are not usually represented in the intimate garden, but there are several small-flowered, refined species and varieties which are well worth a place in the hardy border. A newcomer in this class is called Autumn Glory, and deserves its name, flowering as it does very late in the season and presenting great masses of golden-yellow blooms that suggest giant daisies. The plants grow four or five feet high, and although perennials, coming up year after year, they will bloom the first year if seed is sown early.

Egypt contributes a novelty this year in *Dimorphotheca eklonis*, evidently a species of the South African daisy which has been grown for several years and is a good garden annual. The new flower is a dwarf, growing scarcely more than 15 inches high and the blooms are star-shaped, fairly large and white with a deep-blue disk. It has yet to prove its merits, but seems likely to grow as well as its cousin.

For years zinnias were looked upon as plebeian, but within the last two or three seasons have been raised to a much higher estate. Now the most fastidious garden makers are growing them. The reason lies in the development of flowers in new and most delightful shades, particularly soft pastels, which make them unsurpassed for house decoration.

There are many new and probably improved varieties of the old-time favorite garden flowers, some of which are worth experimenting with. This is especially true in respect to snapdragons and larkspurs, both of which are such delightful garden subjects that any new offerings among them cannot well be overlooked, even by cautious garden makers who are prone to view all novelties with suspicion.

The Tenth International Flower Show

FLORUM AMATOR

FROM the very moment a visitor to this show, held in the Grand Central Palace, New York City, March 12 to 17, 1923, reached the head of the broad stairway leading to the main floor, he was caught and held by a loveliness of color, a beauty of form, and an intoxicating perfume, a combination found only in the republic of flowers. Garden on garden of flowering and foliage plants, in charming arrangements and groups, and single specimens, and vases of beautiful cut flowers confronted him and hemmed him in on every hand. When later he passed from the main floor scene of beauty to the mezzanine, he found a supplement of that on which his eyes had just been feasting.

and prize, was not far behind in the number of plants used. It is, it seems to me, vain to waste words in saying by way of criticism that such gardens as these with their great wealth of blooms, appearing on a large variety of plants at a time, are impossible in real gardening in the open, even in the most favorable season of the year, and in the most congenial part of our country climatically. True it is, that not a garden exhibited at this show, either by private or commercial growers, could be produced and maintained for a week under the open sky. Such gardens, however, as these, are justified by the fact that only by the setting up of high ideals is advancement gradually gained and potentialities made realities. The main fea-



The prize winning group of flowering plants exhibited at the International Flower Show by William Boyce Thompson (Andrew Strachan, gardener) arranged as a garden

During several days of the week in which this greatest of all flower shows in this country was staged, the elements were unkind and doubtless curtailed somewhat the aggregate attendance. The 1923 New York Spring Flower Show, nevertheless, as regards the number, variety, and quality of its exhibits scored a distinct success.

Without the many admirable gardens, groups, and single specimen plants, staged by the skilled gardeners of private estates, this Tenth International Flower Show would have been like "Hamlet with Hamlet left out." On the main floor directly in front of the head of the stairway leading thereto and attracting at once the attention of visitors, were two groups arranged as gardens, each covering five hundred square feet, of flowering plants. Both were lavishly planted with hardy and tender flowering stock: that of the first prize winner, William Boyce Thompson, Yonkers, N. Y. (gardener, Andrew Strachan), the more so, but that of Mrs. Payne Whitney, Manhasset, L. I. (gardener, George Ferguson), which drew the sec-

ond prize, were a central bed of *Primula Kewensis* with an edging of *Sweet Alyssum* and four other beds of *Primula malacoides*. In the background were tall *Clarkias*; a pergola covered with *Dorothy Perkins* roses; *Acacias*, *Genistas*, and *Chorizemas*. The pillars at the front corners were wreathed with *Excelsa* roses and on each side of the front and two side gates were *Dorothy Perkins* roses and lilacs. I liked the three gate features of this garden, warm invitations, as it were, to enter its precincts. Mrs. Whitney's garden, however, was a very close second to Mr. Thompson's, the chief features of which were a center of green sward interspersed with stepping stones; little groups of crocuses growing in the grass; on each side of the gate double *Van Sion* narcissus, tulip *Clusiana*, snapdragons, and *Lilium rubrum*; *Buddleia Asiatica* around the front corner pillars and *Darwin* tulips at their sides and back; a background of rhododendrons, *Genistas*, lilacs and hardy azaleas against a higher background of late cedars.

One of the most handsome exhibits, it seemed to me, in the entire show, though far from the largest, was the William Boyce Thompson group of foliage plants. Mr. Strachan's skill as a grower and a garden architect was even better manifested in this than in the flower garden. Crotons, wonderfully well colored, banked on three sides were the main features but scarcely less beautiful were the fancy-leaved Caladiums, Pandanus, and Dracenas within the embankments of Crotons and amidst a setting of *Adiantum cuneatum*. Plants of *Phalenopsis* gave a floral touch and light to this elegant group.

The splendid cyclamen plants, seventy-four in all, exhibited by Mrs. I. A. Constable, Mamaroneck, N. Y. (gardener, James Stuart), and by Mrs. Daniel Guggenheim, Port Washington, L. I. (gardener, Thomas Leyden), and felicitously arranged to form one great group throughout the week of the show appeared to claim from visitors scarcely less well deserved attention than the gardens.

Orchids with the wondrous beauty of colors and strange forms of their flowers always enthrall a crowd of visitors. Especially notable was the group of twelve plants of Col. H. H. Rogers, Tuxedo Park, N. Y. (gardener, Pasquale Venezia), made up of *Cymbidiums*, *Phalenopsis*, *Cattleyas*, and *Brasso-Cattleyas*, shown amidst a setting of *Adiantum* ferns, and six plants of the same exhibitor comprising *Oncidiums*, *Cymbidiums*, *Cattleyas*, and *Phalenopsis* arranged with greens, and again by the same exhibitor the specimen plant of *Laelio-Cattleya*, Mabel, and the *Brasso-Cattleya*, Maronii. Equally fine in the open class was the group covering one hundred square feet of James B. Duke, Somerville, N. J. (gardener, A. E. Miles), in tier arrangement, the leading features of which were *Oncidiums* and *Cymbidiums*, and the specimen of *Brasso-Cattleya*, *Fournierii*, the winner of a special

silver medal. Very interesting also was the prize winning group of twenty-five hybrids of the same exhibitor. The newest orchid, perhaps, in the entire show was the splen-



The exhibit of Julius Krohns Company in the large under glass, representing a Spanish court yard, which was awarded the gold medal.

did *Brasso-Laelio-Cattleya*, Snowden, with its white flowers of enormous size, shown by William Arthur Cooley of Pittsfield, Mass. (gardener, Oliver Lines), and the



The exhibit of Robbink and Atkins, representing a charming rock garden to which a special gold medal was awarded.

winner of a gold medal. The immense *Cymbidium*, exhibited by Mrs. Bertram H. Borden, Rumson, N. J. (superintendent, William Turner), bearing nearly four score flowers, was a wonderful specimen.

The twelve broad-leaved and the twelve narrow leaved *Crotons* of Miss Alice De Lamar, Glen Cove, L. I. (gardener, James McManus), and of Mrs. Daniel Guggenheim, each exhibiting both types, outside of the William Boyce group, seemed to me to be the most noteworthy display of foliage plants in the show.

Cineraria hybrida plants shown by Mrs. B. G. Work of Oyster Bay, L. I. (gardener, Robert Honeyman), and by Samuel Untermeyer (gardener, A. A. Leach), represented well the older type of this plant, and an equal number shown by William Boyce Thompson and C. E. Mitchell, Tuxedo Park (gardener, James Ventola), of *Cineraria stellata*, defended successfully the modern type of this plant.

Excellent indeed was the silver medal winning group of *Acacias* with an intermingling of *Imantophyllum* (*Clivias*) of Mrs. F. A. Constable, and the certificate winning specimen of a lighter colored specimen plant of *Imantophyllum*.

Azaleas in these days of no more importations can hardly as yet be expected to be equal to those of former years, but the group of three exhibited by Mrs. E. F. Luckenbach, Port Washington, L. I. (gardener, Thomas Twigg), and by James H. Macdonald, Flushing, L. I. (gardener, Richard Hughes), were good representatives of the old time favorite.

The three *Buddleias*, *Asiatica* type, shown by Mrs. Daniel Guggenheim, and the three by Mrs. B. G. Work, were very large, fine plants, well foliaged and in full flower, and seemed deserving of a more conspicuous position than they had.

Twelve notably fine plants of *Amaryllis* were exhibited by Mrs. Daniel Guggenheim and twelve good plants of the same by Mrs. F. A. Constable. Six good plants by Mrs. E. F. Luckenbach and a like number by Mrs. F. A. Constable filled out well the exhibit of this stately flower.

The most notable exhibit of plants, outside of lilies, whose flowers have an agreeable fragrance as well as beauty of color and form, was that of the twenty-four stocks staged by Mrs. John T. Pratt (superintendent, John W. Everett).

Three *Schizanthus* in a group and one specimen plant, all of giant size and excellence, were shown by William Boyce Thompson.

The *Primula malacoides*, twelve plants shown by Mrs. E. F. Luckenbach, and the same number by J. W. Harriman, Glen Cove, L. I. (superintendent, William G. Carter); the twelve *Primula obconica grandiflora* by Mrs. Payne Whitney, and the six plants in variety by the same exhibitor and by Col. H. H. Rogers, made up a showing of *Primulas* which drew hardly less deserved attention by their beauty and splendid keeping quality than the *Cyclamen* group. And besides these there was a dozen fine plants of the now less often seen *Primula Sinensis*, staged by Mrs. Eugene Meyer, Jr., Mt. Kisco, N. Y. (gardener, Charles Ruthven).

Six plants of *Nemesia*, excellent representatives of this plant, which is little seen in the show room, were exhibited by Mrs. E. Iselin, New Rochelle, N. Y. (gardener, Duncan McIntyre), and also by Mrs. F. A. Constable. Unfortunately this plant does not retain its beauty long in the show room, but we observed among the six plants of Mrs. Iselin two with orange-yellow blooms which seemed to be an exception to this statement.

Especially excellent in the single specimen plants, not previously mentioned in connection with groups, were a *Kentia Belmoreana* shown by Mrs. F. A. Constable; a

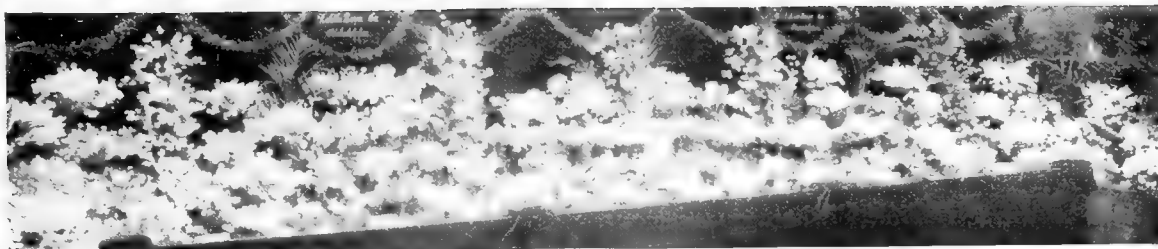
Marguerite by Mrs. E. F. Luckenbach, and *Asparagus Sprengeri* by Miss Alice De Lamar; a *Cibotium Schiedei* by Mrs. Daniel Guggenheim, and one by Samuel Untermeyer; an *Adiantum Farleyense* by Mrs. McK. Twombly, Convent, N. J. (gardener, Robert Tyson); a *Cytisus* by Mrs. John T. Pratt; a standard *Fuchsia* by Mrs. F. A. Constable and an *Areca lutescens* by the same exhibitor; two Bay trees by Mrs. E. F. Luckenbach and a *Chorizema* by Gen. Howard S. Borden, Rumson, N. J. (superintendent, Percy Hicks); geraniums in bush and standard form and heliotrope in standard form by Miss Alice De Lamar.

The exhibits of bulbous plants were comprehensive and large in the aggregate. Hyacinths staged in good form soon deteriorated. Tulips, especially Darwins, and the splendid group of single early tulip, Gen. De Wet, kept better than the hyacinths and so also the narcissi and freesias. To Mrs. Bertram H. Borden, who staged prize winning exhibits in almost or quite all the bulbous classes, and to Mrs. Daniel Guggenheim were awarded the Scheepers' Gold Medals for achievement in bulb culture. Other exhibitors of well grown bulbous stock were: Mrs. Payne Whitney with Darwin tulips, valley, and hyacinths; James Macdonald showing a collection of hyacinths; Mrs. John T. Pratt with well grown valley and colored freesia; Mrs. Harold I. Pratt, Glen Cove, L. I. (superintendent, Frank C. Johnson), with colored freesia and valley; Mrs. George Dearborn, Rye, N. Y. (gardener, James Tough), showing twelve pots of splendid lilies; Mrs. Harold I. Pratt showing in the open class lilies, covering fifty square feet, arranged with *Nephrolepis* ferns, flowers of excellent quality including *Lilium Harrisii*, *L. Henryi*, and *L. rubrum*. James Macdonald, Mrs. Harold I. Pratt, and Mrs. Daniel Guggenheim carried away the prizes for a collection of hyacinths, for the Darwin tulip, Louise de Valliere, and for a collection of a new race of tulips between Darwin and Early; and the same exhibitors and Mrs. Bertram H. Borden took the prizes for double Early and Darwin tulips, and large trumpet daffodils.

The most noteworthy of the cut flower displays in roses were the Premier of Mrs. H. McK. Twombly; the Columbia of Mrs. F. A. Constable and also of Mrs. E. E. Smathers, Port Chester, N. Y. (gardener, W. D. Robertson); the Ophelia of Mrs. Twombly; a red variety of Mrs. L. P. Child, New Canaan, Conn. (gardener, M. J. Quirk); a yellow variety of Mrs. Insley Blair, and the vases of mixed varieties of Mrs. Twombly and Mrs. Childs.

In carnations, the Laddie and Matchless of Mrs. Insley Blair; the light pink of Mrs. E. E. Smathers and of Mrs. Arnold Schlaet, Naugatuck, Conn. (gardener, E. Lawrence); the Maine Sunshine of Mrs. F. E. Lewis, Ridgefield, Conn. (superintendent, J. W. Smith); and the vase of one hundred fifty blooms consisting of Laddie, Maine Sunshine, and Matchless of the same exhibitor; an unnamed red of Mrs. Blair; the Pocahontas of Mrs. R. Mallory, Port Chester, N. Y. (gardener, William Smith); the immense blooms of a variegated white of George Grant Mason, Tuxedo Park, N. Y. (gardener, D. McGregor); and a variegated white of George F. F. Baker, Tuxedo Park, N. Y. (gardener, William Elling); the red and yellow of Mrs. L. L. Dunham, Madison, N. J. (gardener, Ernest Wild); the crimson of Mrs. S. D. Bliss, New Canaan, Conn. (gardener, John Barry); the Laddie of Mrs. F. A. Constable, and a vase of one hundred fifty blooms shown by Mrs. Payne Whitney, made in this class a remarkably creditable showing.

In sweet peas the displays, each covering twenty-five square feet, by Mrs. William R. Cross, Morristown, N. J. (gardener, A. E. Sailer), and by Mrs. F. E. Lewis; the collection of six varieties, twenty-five sprays of each, of



The attractive exhibit of sweet peas of the W. Atlee Burpee Company, which included many of their novelties, their latest novelty, King Tut, being prominently featured

Mrs. F. E. Lewis and of Mrs. Stuyvesant Fish, Garrison, N. Y.; the one hundred sprays of one or more varieties, arranged for effect, of Mrs. F. E. Lewis and of Mrs. S. H. Gillespie, Morristown, N. J., were justly admired.

In the miscellaneous cut flowers, the splendid lilies shown by Mrs. B. G. Work; the fine stock of Mrs. John A. Topping, Greenwich, Conn. (gardener, George Hewitt); the snapdragons of Mrs. Percy Chubb, Glen Cove, L. I. (gardener, Peter Smith); the Acacia of Mrs. B. G. Work; the white freesia of Mrs. Ridley Watts, Morristown, N. J. (gardener, Samuel Golding); the excellent yellow callas of Mrs. E. F. Luckenbach, and the splendid white callas of Charles W. McAlpin, Morristown, N. J. (gardener, William Brown); the Cypripediums of Mrs. Harold I. Pratt; the Wallflowers shown by Mrs. Henry R. Mallory, Port Chester, N. Y. (gardener, H. F. Bulpitt); tulips by Mrs. B. H. Borden and by Mrs. Harold I. Pratt; splendid mignonette by Mrs. Percy Chubb; lilacs, twelve sprays, by Mrs. B. H. Borden and Mrs. Harold I. Pratt, made up a diversified and interesting exhibit in this class.

On Wednesday, when roses were used in the dinner table decorations, there were six tables, each set for eight persons. All were tastefully decorated, but the three winners were Mrs. H. McK. Twombly, using Ophelias; Mrs. Percy Chubb, using Madame Butterfly; and Mrs. Edwin Holbrook, Stamford, Conn. (gardener, Jack Willis), using Sunburst.

On Thursday, carnations were used, and the competition was very close. The winners were Mrs. Nathan Straus, Mamaroneck, N. Y. (gardener, Thomas Aitchison); Mrs. H. McK. Twombly, and Mrs. Payne Whitney.

On Friday six tables were decorated, sweet peas being the flower used. The decorations all were unusually good, but the prizes were awarded to Mrs. Ridley Watts; Mrs. H. McK. Twombly, and Mrs. Payne Whitney on close decisions.

The decorations on Saturday, when miscellaneous flowers were allowed, called for, and found much artistic ability displayed, both as to color harmony and arrangement. The decisions between the six tables were close, but the awards went to Mrs. John Topping, using Delphiniums, Acacias, and Iris; Mrs. Nathan Straus, using Acacias, Nemesis, and Streptosolen; Mrs. Ridley Watts, using larkspurs, Calendulas, poppies, tulips, pansies, ranunculus, and montbretias.

THE GARDEN CLUB OF AMERICA

THIS club made interesting and unique exhibits in several classes. These embraced: "Artistic arrangements of flowers suitable for a living room, two by three feet, allowed by each exhibit." There were many exhibits in this class, the pronounced feature of which was extreme simplicity. These exhibits which were in class I in their divisions, A, G and C, were maintained throughout the week. Those under A covered Monday and Tuesday, pottery and china containers

being used in which flowers, foliage, berries, shrubs and grasses were allowed; those under B covered Wednesday and Thursday, glass containers, flowers and foliage allowed; and those under C covered Friday and Saturday, metal containers, flowers and foliage allowed.

In Class II Miniature Gardens of exhibitors' original plans, built on a tray two by three feet, were shown and maintained throughout the show. Many very clever plans were exhibited.

In Class III which called for "Suburban Plantings", a house and garage being placed on an interior lot with a frontage seventy-five feet and a depth of one hundred fifty feet, ground practically and attractively planted; model on tray twenty by forty inches. There were an extremely large number of contestants whose very clever exhibits attracted throughout the week a very large number of visitors at the Show and elicited much commendation.

In Class IV Luncheon Table Decorations were shown in two divisions, A and B. In both divisions, A, from Monday till Thursday; B, from Thursday through Saturday, five-foot tables set only with four plates, were used; flowers, foliage and fruit allowed. A combination of simple beauty and of rigid economy was the desideratum in these table decorations, and this was strictly observed in all the large number of exhibits which drew deserved attention by their merits.

THE COMMERCIAL EXHIBIT

IT is well that the wise managers of the New York Spring Flower Show have arranged so that the partial recompense to the builders and exhibitors of gardens for their large expenditures of labor, plants, et cetera, and for their craft spirit manifested pro bono publico, is no longer dependent upon awards of money prizes, which perforce always left some of the exhibitors without recognition. What comparison, indeed, as a basis of an award could there possibly be between that wondrously conceived and constructed Dutch Bulb garden of John Scheepers, Inc. (illustrated on our front cover), beautiful in the chaste simplicity of its array of Darwin tulips and other bulbous flowers, and lovely with its surrounding border of Spring flowering shrubs and trees, and its ivy festooned arches, and the Bobbink and Atkins garden of azaleas with their vivid colors, a perfect gem, reminding one emphatically of those palmy days when Belgium's plants were not shut out of the United States, and at the same time demonstrating what our American plant growers can produce.

Again who could be so audacious as to decide which was the better, the garden of A. N. Pierson, Inc., a rose garden, pure and simple, with low growing rose bushes all abloom, a perfect example of the rose used in under-the-open-sky gardens, a lovely garden to linger in and drink in the sweet odor of roses, and the Oriental court of Julius Roehrs Company, a splendid example of the use of exotic plants in open court architecture, an inviting

place in which to rest under the shade of great palms.

Another garden of the Julius Roehrs Company was a rock garden, paved in part with "Metowee" stones. In the background was a rock wall with a pool at its base, up to which led stone steps, and overspread with conifers. On the one hand there were dogwoods amid greenery, and on the other, a great variety of flowering shrubs, such as are at home among rocks.

Not far away from this, there was the larger and more elaborate, and quite different rock garden of Bobbink and Atkins. This had beds of flowering plants in its wide front of green sward. In the background, there was a mass of precipitous rocks, amidst which plants nestled. Rocky steps led up to this rocky hill, on each side of which were flowering plants. Out of the rock mass there broke a stream which turned an old-time wooden over-shot water wheel.

Passing from these two fascinating rock gardens, I found another garden differing greatly from any which I had already observed, the garden of F. R. Pierson, which fairly commanded attention. In this, two pools, a rockery, and borders of flowering shrubs made up the foreground; Dogwoods, evergreens, and forsythias formed the background. A tall silver birch towered high above the upper pool. In this garden, representing stupendous manual labor as well as brain power, were many blooming shrubs, namely Pyrus, rhododendrons, azaleas, wistarias, spireas, and bulbous plants also. How can anyone think of such a thing as comparing this with the rock gardens; this represents one type, the rock gardens another.

All of the 1923 Flower Show gardens were evidently built by men who had a vision at the very outset of how their gardens would appear when completed. They were not gardens of the patch-added-to-patch kind till the allotted space is filled.

The orchids were also high spots in the show. Notable among the groups shown was the banked display of Julius Roehrs Company; the table display of Joseph Manda Company, and also of Lager and Hurrell, and a group exhibited by George E. Baldwin. All these, staged close to one another on the main floor, made a big beauty spot which was thronged with visitors throughout the show.

Very noteworthy was the border display and the group display of well grown azaleas by Bobbink and Atkins; the Genistas and the Marguerites of Madsen and Christensen; the fine lilacs of Bobbink and Atkins; the magnificent group of Nephrolepis ferns in variety of F. R. Pierson; and last and especially excellent was the two hundred square foot display of a great variety of remarkably well grown Easter plants, staged on a bed of moss by A. L. Miller, Jamaica, L. I. As an example of pot plants grown for purely commercial purposes, there was nothing in the entire show which could be compared with it.

The only commercial display of sweet peas was that covering one hundred square feet made by W. Atlee Burpee Co., Philadelphia, an excellent exhibit of Burpee's fine novelties.

Sturges & Walter Company staged a very attractive trade exhibit, various varieties of bulbous stock in bloom, tulips including Gen. De Wet and Ibis; the finest of cottage and Darwin types among which was to be seen the new black Darwin, Mystery, narcissi, hyacinths, lilies, and lilies of the valley. All were arranged to present a very attractive effect.

Charles H. Totty Company also had an artistically arranged trade exhibit, showing cut roses, including Souvenir de Claudius Pernet, Golden Ophelia, Ophelia, Madame Butterfly, Columbia, Annie Laurie. The new rose, Amer-

ica, which was awarded a gold medal, was the feature attraction.

BOSTON SPRING FLOWER SHOW

ADMISSION to the Spring Show in Boston was free this year and the attendance beat all previous Spring show records. Thomas Roland's wonderful acacia garden which filled the lecture hall received a gold medal. There were two hundred plants in tubs, thirty-five varieties, beautifully arranged and all showing matchless culture. It was generally agreed that no such acacia display had ever presumably been made in America. Albert C. Burrage (Fred Pocock, supt.) constructed a large pergola and hundreds of Phalenopsis and other rare orchids were suspended from the same. At the base, for a length of fifty feet, rock work was constructed and orchids arranged in groups were artistically displayed. All pots were covered with green sheet moss and varieties were plainly labelled. There was a wealth of Cymbidiums, Odontoglossums, Odontiodas, Miltonias, Masdevallias, Brasso-cattleyas, and other varieties, awarded a gold medal. A bank of mountain laurel in tubs with a background of hemlocks was attractively arranged by Mrs. Alice C. Burrage, which covered one thousand square feet.

Julius Roehrs Company received a gold medal for the best commercial group of orchids. They also received a first-class certificate for the brilliant Bougainvillea Carmine. A. N. Cooley, Pittsfield, Mass., had a very choice group of orchids and received two gold medals for twelve plants and six plants. Another gold medal went to the Walter Hunnewell estate (T. D. Hatfield, supt.) for the best group of orchids grown on a private estate, which contained some wonderful Cymbidiums. Thomas E. Proctor, Topsfield, Mass., showed a marvelous group of Pink Pearl rhododendrons, smothered with flowers. James Marlborough is an expert grower of these and many other plants. A very fine was the prize winning amaryllis grown by Peter Arnott, superintendent to E. S. Webster.

A noteworthy display was made by Harry S. Rand of Cambridge, comprising over one hundred varieties of Zonale pelargoniums. Schizanthus from Peter Arnott and William Thatcher were very fine, as were also the Cine-raria stellata shown by Irving H. Stewart, head gardener to Howard Cooley, Readville, Mass. A large group of cacti from Wollrath and Sons attracted much attention.

Some fourteen of the best models shown by the Garden Club of America at the late New York Show were on exhibition and crowds of visitors were interested in them. They were awarded a gold medal.

On April 5, Herbert Gleason gave an illustrated lecture on Native Plants; on April 6 E. H. Wilson lectured on acacias; and on April 7 Robert Cameron on Spring bulbous plants. The three lecturers addressed large audiences. So great was the interest taken in the acacia display that it was decided to continue it until April 11, which permitted many thousands more to enjoy it.

All that we have willed, or hoped, or dreamed of good,
shall exist.

Not its semblance, but itself; no beauty, nor good, nor
power,

Whose voice has gone forth, but each survives for the
melodist.

When eternity confirms the conception of the hour,

The high that proved too high, the heroic for earth too
hard,

The passion that left the ground to lose itself in the sky,
Are music sent up to God by the lover and the bard;

Enough that he heard it once; we shall hear it by and by.

-Robert Browning.

Strawberries and Their Culture

E. S. HUSSY

STRAWBERRIES require a rich moist and fairly heavy loam. Anything approaching a light gravelly shallow soil is useless; but where such exists it may be improved by a good digging or trenching, at the same time adding plenty of well rotted manure or leaf soil. The end of July to the middle of August is about the best time for planting out strawberries because they get a good start and become well rooted before any hard weather sets in.

The commonest way of multiplying strawberry plants is by means of "runners." These runners are usually produced freely in early Summer. In selecting the runners to obtain good results, the runners must be taken from one year old plants, as they are strong and make an early vigorous growth. They may be pegged down or layered to the ground, or into three-inch pots filled with soil. The latter is on the whole the better method, as the young plants when well rooted are more easily detached from the parent plant and removed to the soil in which they are to be planted. It is an excellent plan to have no more than three or four runners on each plant, cutting all the rest away. The runners must never be allowed to get dry, a little watering now and again will help them. When they are well rooted they may be cut away from the parent plant and placed close together until the time comes for planting.

Having the runners well rooted and the ground properly prepared the plants can be planted in rows two feet apart and eighteen inches from plant to plant. Care must be taken not to plant too deeply as the crown or center of the plant must not be in any way covered with the soil. After planting the soil should be firmly trodden around each plant as strawberries like good hard ground. Neglect of this precaution often results in failure or bad crops. A young plantation should be made every year, so as to keep up the supply of good young plants. Two or three year old plants produce the best and heaviest crops after which they should be thrown away. Therefore it is most essential that a young planting should be made every year. Except when new plants are required all runners should be cut off as soon as they appear, as they weaken the main plant. The soil near the strawberries should never be dug as the roots would be much injured by the process, for they like good firm ground. When growth starts in the Spring a dressing of Nitrate of Soda on a wet day will help them throughout their season.

STRAWBERRIES IN POTS

TO have good strawberries in-doors the first thing to do is to select good strong runners from varieties that are suitable for forcing. They should be layered into three-inch pots filled firmly with rich loam as soon as they can be handled. Having obtained new strong well rooted plants, as described above, they should be potted into five or six-inch pots using rich fibrous loam with a little well rotted manure and a little wood ashes. The pots must be well drained by means of cinders or broken pots. Be sure and pot firmly. Afterward give them a good soaking of water and place them in a shady spot for a few days until they recover from their disturbance. But afterward they cannot have too much sun and air to develop and ripen their growth. The greatest attention must be given to watering, taking care that the plants never become dry or the young roots will become shrivelled up.

On the approach of cold frosty weather the plants may

be removed to cold frames. They should be quite near to the glass and always have as much light and air as possible except on very cold days. Any time in December the plants can be removed to the forcing house, a temperature of 45° to 50° will suit the plants perfectly at first. Watering and ventilation should always be carefully attended to and a syringing under and over the foliage will be very beneficial and check the attacks of red spider. As the flower trusses begin to show, the temperature may be increased to 55° to 58° and the syringing should be discontinued after the blooms open. When the fruits have set well, only the larger ones should be retained for ripening, all the small ones being removed from each truss. To assist the plants at this stage a little liquid manure may be given about three times a week until the fruits begin to color. Then pure water is best. The plants need not all be forced at the same period, this may be arranged by taking a few from the cold frame at intervals of a week or a fortnight as required.

THE CULTURE OF BEARDED IRISES

THOSE who have grown the old German Irises for years and been uniformly successful with them although they have never spared a thought as to their culture, will doubtless smile at my title. It is of course, true that in certain rather light, clean soils these plants will flower freely and the blossoms will be little out of character, even though the only attention they receive is lifting and dividing when they become excessively overcrowded.

Not everyone, however, has such natural soil, nor will the possessor of such find it of much avail should his plants unhappily become infected with rhizome-rot. To obtain the best results with these Irises, particularly as regards size of flower, the soil should not be over-light; it should, on account of the "rot" danger, contain a fair percentage of lime, but it should **not** contain any appreciable content of humus. Drainage should be free, the site where they are planted open to sun and air, and the rootstocks should at no time be buried to more than half their depth.

There seems no doubt that varieties which are shy to flower—and some of the newer ones are rather shy—flower best when planted in full sun and left to establish themselves for a year or so, but there is wide scope for systematic investigation as to the comparative requirements of the different sections. Personal experience would suggest that the *squalens* and *variegata* sections are more weatherproof than the stately *pallidas* and *trojanas*, for instance. The former appear to withstand with greater equanimity—if the word may be pardoned—Summer heat and Winter wet.

The same remark will apply with equal force to planting times. It is by no means clear which is, in fact, the best planting season—indeed, there are considerable differences of opinion on the question—but may not the fact be, after all, that different sections and, since so much intercrossing has taken place, different varieties, even though somewhat similar in appearance, transplant best at separate seasons?—*The Garden*.

A cheerful temper joined with innocence will make beauty attractive, knowledge delightful, and wit good-natured.—*Addison*.

THE LITTLE GARDEN

TO a thirsty man a few cups of water are better than an ocean which he can swim in but cannot drink. The widespread love of flowers—would that it were universal and more intense!—is better satisfied by the purity and freshness of a few choice blooms than by a wide area of extensive planting. The former meet a necessity; the latter provides for enjoyment. Yet the ocean has its value. Without it the winds which travel to the four corners of the earth would everywhere pass over a desert. The winds of the gardening world blow over the area of extensive culture and gather up its essence, bearing it to distant regions to feed the springs which bring refreshment and beauty to many an otherwise barren spot.

These springs are the little gardens. Though measured in rods they are in no way to be despised in comparison with those which are measured in acres. Nature is infinite, and size is nothing in her presence. The more one is in sympathy with the spirit of Nature, which is the spirit of true gardening, the more evident becomes the potential value of the little garden.

It is a matter of common observation that the greatest specialists among us are the greatest enthusiasts. The treasures which gardening holds are scattered widely, but also buried deeply so that the pearl diver who confines his attention to one spot may easily reap as rich a reward as the explorer who sails round the world in search of variety.

A garden makes its strongest appeal when Spring flowers are first coming into evidence. This is partly because flowers are scarce at this time so that the few which do appear stir a deeper interest than their actual numbers would seem to merit. The attention they draw is concentrated and, therefore, intense, and is assisted by the more cheerless Winter background against which they appear.

Not alone by Winter, however, is a dull background provided. One has only to notice the condition of thousands of the enclosures attached to the everyday dwellings owned or tenanted by "the men in the street" to realize what neglected possibilities lie strewn on every hand. How different might our towns and cities be if only the romance dormant in a patch of soil were appreciated by every lucky owner of a "back yard."

We pride ourselves on being the greatest gardening nation in the world, but there is still room for us to prove that we can be great in little things. It is a reflection on the popularity of the pastime that the term "back yard" should have a derogatory meaning.

There lies a little patch of earth, neglected, down-trodden and hard as the heart of the owner, who sees in it no possible source of intellectual refreshment. Wonderful in its history and composition, richly stored with material which might be built into a living structure worthy of the admiration of a man, teeming with living workers and holding deeper secrets than the wisest among us have yet fathomed, it remains brown and bare beneath the oft-passing footsteps. Yet leave it entirely to Nature for a time and see what happens. Its life-supporting powers find expression and weeds appear. Where weeds can flourish fairer plants can grow.

No serious readers of this paper are likely to miss all the possibilities of the little garden, but it is doubtless in the power of many to influence others who do. If ignorance is the cause there is plenty of information which can be distributed freely with benefit to both giver and receiver.

If interest is lacking it can be stimulated by the healthy infectious enthusiasm of those who know the value of a garden, however small. Various forces are working to forward the movement, but personal influence is the most effective. Individually it may not appear much, but one of Nature's greatest lessons is the importance of little things—be they vitamins or eelworms!—*The Garden.*

JERUSALEM CHERRY

SOLANUM capsicastrum, or as it is popularly known, the "Jerusalem Cherry," is an evergreen greenhouse plant of dwarf compact habit, attaining with age a height of from one to two feet. It is what is known as an old-fashioned plant, but is rapidly coming again into popular favor, for when well grown and cared for it is a grand plant for the decoration of the greenhouse or window garden during the Winter months, especially during the holiday season, as its glossy scarlet berries are borne in the greatest profusion, and form such a contrast to the glossy green leaves that the name of miniature orange tree is often bestowed upon it. The glossy scarlet berries which are about the size of a small marble, commence to ripen about the end of September, and remain on the plant until the growth commences in the Spring, the flowers being quite small and insignificant, writes Charles E. Parnell in *The Flower Grower*.

This highly ornamental plant requires but little care or attention to grow it to great perfection, and is easily raised from seed which should be sown as early in the Spring as possible, in a well drained pot or pan filled with light loamy soil. Sow thinly, cover slightly, and place in as warm and moist a situation as close to the glass as possible. As soon as the young plants are large enough to handle, let them be transferred to other pans, or shallow boxes, similarly prepared, and placed in rows about an inch each way, and grown on until the weather becomes settled, when they can be planted out in a very deep well enriched bed, in a warm sheltered situation, and placed about 18 inches apart each way. If at all possible, give a light mulch of littersy manure and copious supply of water both overhead and at the roots during the Summer.

About the middle of September they should be very carefully taken up and potted, giving them well drained pots proportionate to the size of the plants. When first potted, water thoroughly, sprinkle freely and frequently for several days afterward. Keep them in a sheltered situation until they are brought inside, where they should be given as light and sunny a situation as possible, and an average temperature of 50 degrees.

If it is desired to carry the plants over for another year (and it is well to do so, as large specimens will be secured), let them be cut back to the desired shape and size early in May, planted out, and grown on, precisely as advised for seedling plants. As a result of the care and attention that has been given the Jerusalem cherry of late, the varieties known as Weatherill's Hybrid and Hybridum Hendersonii have been produced, and are quite improvements on the older sort; the former being of more compact growth, having darker green foliage and much larger berries; the latter being of a more dwarf, compact habit of growth, with berries more resembling an acorn in shape, and as a rule reproduces itself fairly well from seed.

When grown as pot plants the solanum should be given a rich loamy soil, and during the Winter months carefully supplied with water, as if this is not properly done, and the plants allowed to suffer for a want of moisture for any length of time, or often, the berries will ripen prematurely and drop. The plants should be freely sprayed or sprinkled whenever it is convenient to do so.

From An Old World Garden

ARTHUR T. JOHNSON, F. R. H. S.

IF I were asked to state what are the most noticeable features of today in the trend of English gardening I should frame my reply very briefly somewhat thus: In the first place there is in most of our best gardens a decided leaning towards a modification of the old herbaceous border which has been so firmly established for nearly a century. The high rate of labor and material since the war has been a factor in bringing about this change, for no part of the garden is so costly to maintain as an herbaceous border. But there are other influences at work. With the introduction of so many new plants from all quarters of the globe by Wilson, Forrest, Farrer and others, there has arisen a notable partiality for the species, rather than the hybrid of garden origin. The enormous popularity of rock-gardening has, of course, helped to stimulate this preference, for your true alpine is always, or nearly always, a species.

Now this transformation in garden design suggests that there is a certain weakening in that appreciation of great displays of massed color to which we have so long been loyal, and it is so. Just as the old and gaudy carpet-bedding style went out with the Victorian Era, to be supplanted by something less formal and more pleasing, because less artificial, so we are gradually witnessing a process of evolution in the herbaceous border which promises to culminate in something very different. That we shall continue to have our Delphiniums, Phloxes, Antirrhinums and the rest there is no doubt. The demand for these is probably as keen today as it has ever been. New sorts are constantly being sent out. But our handling and treatment of them will be different. They will have to make elbow-room for those distinguished strangers, the species, which have so peculiar a fascination of their own, quite apart from what intrinsic beauty they may possess, and which we cannot resist.

In addition to the influence it has exercised in promoting an interest in species, the rock-garden has also been a magnet which has side-tracked many adherents of the old-style bed and border. Scarcely less might be said of the wild or woodland garden which is now so often a happy substitute for those dismal "shrubberies" which had neither use or meaning. Why, one would now as soon think of growing mustard and cress in the rock-garden as of bundling together in a chaotic mass, say, Wilson's *Cotoneasters* or *Berberises*, and calling it a "shrubbery." Indeed, it might be said that the semi-wild or woodland garden owes its inception to a great extent to these and other introductions in shrubs and trees.

The *Ericas* are a prominent feature of many such gardens as the above and I know of no more useful and ornamental race of shrubs. My own district being tolerably mild, there are varieties of Heather which will give us bloom throughout the year, beginning with *E. Darleyensis* in November and winding up with the handsome Corsican, *E. stricta*, in October. At the moment of writing (mid-March) *E. carnea* is covering a bank with a mass of its brilliant carmine-pink. This is extraordinarily hardy and the roughest wintry weather has no effect upon the beauty of the blossoms. *E. hibernica*, which is rather a lax-habited form of *E. mediterranea*, but with distinctly glaucous foliage, is also in full flower and the fresh, lettuce-green of the plumose *E. lusitanicus* (codonodes) is strung with its pretty white bells. *E. australis*, perhaps the most distinct and beautiful of all, is also opening its large urn-shaped flowers in vivid rosy-purple.

This is not hardy nor is the true species often seen.

But among all these and other Spring-flowering Heaths, *E. mediterranea* is doubtless the most satisfactory for general use and wide plantings, a great drift of its delicate rosy-purple having a most charming effect. It grows to about 3 feet with us, but there is a form known as *E. m. superba* which is larger and even more floriferous than the type, a most glorious shrub when in full bloom and one that will remain "on show" from early April to the end of May. (See illustration.)

Among flowers that last long *Vinca acutiflora* deserves special mention. This is a Winter-flowering Periwinkle, albeit a most accommodating plant, falling in with almost any circumstances with the best of good will. With us it started flowering last November and, the Winter being mild, it is still as good as ever. This is not a trespassing species, like *V. major*, but a well-behaved, easy-tempered species for any half-shady spot. It grows about 1 ft. and bears large flowers, snowy white with just a shade of cool lavender, or glacier-white, as some describe it.

Omphalodes cappadocica is another almost perennial bloomer and one whose azure is so pure and intense that not even *Gentian verna* can excel it. This species also has the special merit of being of easy culture. At the moment of writing there is a bed of this lovely Cappadocian Forget-me-not in full flower on our woodland slope. There it has seeded and spread so freely that it covers several square yards, and when I say that the wonderful blue flowers are each larger than a ten cent piece and borne in profusion on airy sprays some 6 inches high, the effect can perhaps be more easily imagined than described.

When on a recent visit to Kew Gardens I refreshed my memory of certain Ericaceous trees and shrubs with which I had become familiar on the Pacific Coast of America. One of these, *Arctostaphylos manzanita*, has now been awarded a first-class certificate by the Royal Horticultural Society, and few of its kind more fully deserve it. This may not be a showy shrub, but, like *Arbutus menziesii* and others of its allies, it has a unique charm. Here it attains a height of 8-10 feet, and maybe as much through; the buds form during the Winter and the panicles of pitcher-shaped blossoms—white, flushed with pink—appear in their full beauty in the early Spring. Now that *A. manzanita* has been brought before the public notice there is no doubt that it will soon become as widely grown here as some of its kindred, especially since it is hardy enough in light soil for any of our south and westerly counties.

Though travelers still search the ends of the earth for novelties I often wonder how many plants and shrubs there still are in California and other parts of America which have not yet been afforded the notice they deserve by European, and possibly American, gardeners. From my own travel experience on the American Continent I could enumerate a goodly list.

The pretty cup of the *Anemone* is so glossy it seems to burn with a white light. The secret of its incandescent beauty is that decided purple washing the outside of the cup. This dark background makes a reflector of the white cup so that it sparkles in the sunshine like a tiny mirror. Often the purple tinge seeps through to the inside of the cup, streaking it most daintily. As for the buds, they are rose and purple beads tipping their hairy fine stems. A group of wind flowers makes a dainty set for butterfly parties.—*C. S. Monitor*.

Origin and Varieties of Muskmelons

DURING the past few years numerous inquiries have been received at the Missouri Botanical Garden concerning the origin and names of the many varieties of muskmelons, and accordingly this article has been prepared with the idea of clearing up the confusion which seems to exist regarding the fruit.

The terms muskmelon and cantaloup are used in different parts of the country to designate entirely different kinds of melons. In the South the term cantaloup generally refers to all the varieties of muskmelons, whereas in the North it is more narrowly restricted to the larger, smooth, yellow-fleshed melon. In any case the use of "cantaloup" instead of "muskmelon" as a general term is incorrect, since all authorities agree that the cantaloup is only one of the subdivisions of the muskmelon. It is the general belief that many of the newer melons on the market, such as the Casaba and Honey Dew, are hybrids produced by a crossing of distinct species. This is not the case, however, since all true muskmelons have originated from a single botanical species *Cucumis Melo*, and there is probably no other plant which has produced such a variety of forms.

One of the most widespread beliefs is that the muskmelon and the cucumber readily cross and that if the two are grown in close proximity the pollen from the cucumber flower will have a deleterious effect upon the melon. Strangely enough, there has never been any report of the effect of the muskmelon pollen on the cucumber fruit, although one would expect the effect of crossing these two plants to be manifested in both directions. As a matter of fact, while the muskmelon and the cucumber are very closely related, both belonging to the genus *Cucumis*, attempts to cross these two plants have never been successful. It is not unlikely that various types of melons taste like cucumbers, but this is because they belong to the cucumber family and not because they have been hybridized with the cucumber.

Numerous attempts have been made to classify the muskmelon, but the one generally accepted is that prepared by Naudin. Naudin obtained material from all over the world and grew thousands of plants, and as a result of his investigation came to the conclusion that *Cucumis Melo* could be divided into ten groups. Among the edible are:

CANTALOUPS (*Melo Cantaloups*).—These are characterized by hard and scaly or rough skins and are usually deeply furrowed. The name is derived from Cantaluppi, a former country seat of the Pope near Rome, where these melons were introduced from Armenia. A considerable difference of opinion seems to prevail as to the spelling of this word, which appears as cantaloupe, cantaloup, cantaleup, canteloup, conteloupe, cantalope, cantelope, in various articles on the subject both in this country and abroad. Naudin spelled it cantaloup, and the weight of authority seems to be with this spelling.

NETTED MELONS (*Melons Brodés*). This group includes the nutmegs and related forms which are grown so extensively in the northern states. The so-called "Rocky Ford" which belongs to the netted group is not a distinct variety, as is generally supposed. The "Netted Gem" melon was the original variety used to develop the Rocky Ford cantaloup. Years of selecting and crossing have greatly improved this type, and the Rocky Ford strains of cantaloups now possess both the green and salmon-tinted flesh. The so-called "Osage" type which appears on the market under the name Osage Melon originated near Ordway, Colorado, adjacent to the Rocky Ford district, and is sometimes confused with the true Rocky Ford melon. The former, however, is characterized by an orange-col-

ored flesh and is entirely distinct from the Rocky Ford type. Another important type belonging in this group is the Montreal Market, or Montreal, which was developed in Canada. This melon, because of its fine flavor and keeping qualities, is in great demand.

WINTER MELONS (*Les Melons d'Hiver ou Melons sans Odeur*).—It is to this group that the Casaba and Honey Dew melons belong. Until comparatively recently the so-called Winter or scentless melons were seldom, if ever, grown in this country. They were regarded as being of inferior quality, and practically their only advantage was their keeping quality. For this reason they have been a favorite variety in Spain and Southern France, where they are grown for the Scandinavian, Russian, and other northern markets. The Casaba melon, also spelled Kassaba, Cassaba, Cassabad, and Casba, was named for the town of Kassaba, some twenty miles from Smyrna. About 1878 seeds were sent to California by travelers who had tasted the melons in the hotels of Smyrna. From this beginning hundreds of acres of this variety are now grown each year, principally in the San Fernando Valley of southern California. They come into the market after the ordinary cantaloup has disappeared and are frequently shipped as late as December or January. The Honey Dew melon is an old south-of-France variety and it is listed by the French seedsmen under the name of White Antibes Winter Melon. At the present time it is most extensively grown in California. The Winter melons are characterized by their lack of odor and greenish or pale pink, rather than reddish orange, flesh.

While the classification of Naudin is still the standard for students of the species *Cucumis Melo*, for purposes of convenience it has become customary to divide the commercial muskmelons into two groups—namely, the netted and the scaly-skinned varieties. The netted group, known as nutmeg or netted melons, comprises those usually grown in the North for the home garden and early market. The scaly or furrowed group contains the longer-season varieties, and the term cantaloup is correctly applied here. *Missouri Botanical Garden Bulletin*.

DAPHNE CNEORUM

ALTHOUGH a little tender in the North, *Daphne cneorum* is one of the best low growing shrubs. There is a great difference in strains, however, some blooming much more freely than others. It is well worth while learning something about the strain your nurseryman sells. The dark green foliage and terminal heads of this daphne, smothered with bright rose-colored flowers with a powerful fragrance, attract the attention of everyone when the plant is in bloom. Nothing is more beautiful in the rock garden; it is equally good when grown in a border. Yet it is very particular about soil. No plant I know dislikes chalk or lime more. When the plants get aged and worn lay the tops of the young shoots in sandy soil, leaving them for two or three years, when they will make fine young specimens. I always found when the plants had attained age they transplanted unsuccessfully, whereas young ones soon established themselves after re-planting.

Horticulture

Do you find the columns of the GARDENERS' CHRONICLE interesting? Certainly you do, or you would not be perusing them. Your gardening neighbor, were he familiar with them, would become equally interested. Why not recommend the GARDENERS' CHRONICLE to him as a guide to his garden work? He would appreciate it—and so would we.

The Changing World of Plants

WILLARD N. CLUTE

OUR forest trees, at once the oldest and most ambitious of Nature's experiments in the vegetative line, have long been on the decline. Not only are there fewer species in the world than formerly but there are fewer individuals. In spite of extensive efforts at reforesting their numbers continue to grow progressively less. Once trees seem to have covered practically all the earth. They formed the dominant type of vegetation; in fact, they may have been about the only forms of plants in existence for few remains of other plants of that far away time have come down to us. The monstrous lizards and other gigantic creatures that once shared the earth with them have gone the way of all things and now the trees are clearly following the same road.

In view of the changes that have taken place in the make-up of our flora and fauna one might be justified in wondering whether each species, as well as each individual may not have its own very definite life-cycle which after a certain period of time causes it to give way to other and newer forms. It is undoubtedly true that certain forms of life are more primitive than others. Such forms seem but poorly equipped for the battle of life as it is waged at present. The kangaroo and the duck-bill come to mind as illustrations from the animal kingdom and among vegetables many of the catkin-bearing trees are in the same category.

Since the arborescent flora is the climax of vegetable activity, it is naturally most numerous as to species, most varied as to form and structure, and most abundant as to individuals in the warmer parts of the world where all the conditions for growth are at their best, but trees are by no means dependent upon especially favorable conditions. The hardy birches, willows, and aspens, though greatly reduced in size and abundance do not shun even the lands beyond the Arctic Circle and there are a great many others whose range is entirely outside the tropics. In the Arctic regions and in extra-tropical lands generally, however, the trees are outnumbered by those up-start new-comers, the herbaceous plants. Time was when they appear to have had no competitors but little by little these more modern species have pushed in, perhaps not so much crowding the others out as occupying any space their diminishing numbers left vacant. But in the tropics the trees still make a brave stand. The prevailing type is a woody one. It is said that only one species in a dozen there is herbaceous.

The trees that first inhabited our globe are now practically extinct. The ferns, scouring-rushes and similar plants were once of tree-like proportions and those we call conifers were much more abundant and widespread. A few of these latter are still represented on the earth. It is possible that there were not as many different kinds then as now, but their modern descendants though more varied in form to fit many varieties of environment that have since arisen are still fighting a losing battle and are being pushed steadily down the road that leads to oblivion. The end has been hastened rather than delayed by that tool-using animal, Man, who has thrown the weight of his activities into the scale against them, felling them by the thousands and cutting up their dead bodies to serve his own purposes.

That the trees lack the aggressive spirit of more modern vegetation is seen in the almost total inability to extend their present areas. There is very little of the weed in the trees. A few may push in where they are not wanted, but a group they hold themselves aloof from such matters. The box-elder comes very near to being a

weed in some places, the ailanthus, an immigrant from the Orient, is like all immigrants fond of colonizing in any convenient place and the elm and cottonwood may spring up in open places ready to contest their right to the spot with all comers, but this is nearly the complete list. We wonder what will kill the weeds, but as regards the trees, we ask how to make them grow!

It is not contended that trees will not spring up in new regions adapted to their growth, but that they have to have specially favorable opportunities for it. Thoreau long ago showed that broad leaved forests are likely to follow coniferous forests and vice versa. One incubates the other, as it were. Under ordinary conditions a slight change may cause one group of plants to give way to another. A small difference in the moisture content of the soil or the presence or absence of a single mineral, may make possible a very different plant covering. Thus the chestnut is inclined to avoid soils containing limestone and various heaths absolutely refuse to grow in them. Lowering the moisture content of the soil may cause ashes and walnuts to replace cottonwoods and willows and similar differences determine whether red or jack pine shall inhabit a given area.

One of the most important differences in the plant covering due to varying amounts of moisture in the soil is seen in the division it makes between the broad-leaved and needle-leaved trees. The trees with slender leaves, like the pines and spruces evaporate water very slowly and are thus able to survive and to retain their leaves in either cold or dry regions. So far as the trees themselves are concerned, cold regions are really dry ones, for though there may be water in the soil in Winter, the trees can get none of it. When conifers and broad-leaved trees inhabit the same general region, the conifers will be found in the driest parts. At first glance this statement seems in error, for almost anybody can recall conifers that thrive in wet places. In such cases the soil is probably dry so far as the plants are concerned by reason of various acids or other substances in the water that prevent the ready absorption of moisture. Thus it happens that some swamps and bogs may be veritable deserts to the plants that inhabit them.

Although the forest trees usually produce seed in abundance, a remarkably small number sprout and grow. This does not seem to be because the seeds lack vitality, but because for some reason the young plants fail to find encouragement in the world. It is to be noted that those which have adopted light and readily distributed seeds are those most likely to extend their territories; in fact, it seems probable that without interference from man, the plants with wind-distributed seeds would in time supplant those with other means of distribution. Think how much more rapidly the seeds of cottonwoods can move into a locality than the seeds of the walnut and oak. Still, when conditions are propitious, even heavier seeds than the walnut may move into far distant lands. This is true of the coconut, whose large seeds, borne by the sea, have penetrated to the most distant lands within the tropics. But when we consider the means of distribution possessed by the coffee-tree, the orange, and similar species, we do not wonder that until man voluntarily spread them for his own uses, they occupied a very small area in comparison with some of the others.

Our grand business is, not to see what lies dimly at a distance, but to do what lies clearly at hand. — *Thomas Carlyle*.

A RARE ORCHID COLLECTION

WHAT is without doubt the finest orchid collection in existence today in the southern states is that of Mr. and Mrs. Asa G. Candler, Jr., which occupies two sections of the greenhouses on their estate at Atlanta, Ga. One section consists of species exclusively, covering a very complete list of *Cattleya Trianae*, *C. Mossiae*, *C. labiata*, *C. gigas*, *Oncidium*, and *Vanda*, which are grown mostly for cut flower purposes. Among the *Vanda coerulea*, one flowered with two spikes last Fall, carrying thirty-two blooms.

The hybrid section contains a choice collection of which mention must be made of the following: *Brasso-Cattleyas* such as B-C. \times Manda, B-C. \times Empress of Russia, B-C. Siren, B-C. Lotus (very rare), B-C. Calypso (very



Brasso-Cattleya, Ilene, of the collection of orchids belonging to Mr. and Mrs. Asa G. Candler, Jr., Atlanta, Ga. (James Barnett, gardener.) This flower measured full $9\frac{1}{2} \times 9\frac{1}{4}$ inches.

scarce), and B-C. \times Nestor; *Cattleyas* such as C. \times Adonis C. \times Lord Rothschild, C. \times Prince John, C. \times Princess Royal C. \times Golden Oriole (a very beautiful orange yellow variety); *Laelio-Cattleyas* such as L-C. \times Australia, L-C. \times Bella, L-C. \times Delight, and so forth, comprising in all about three hundred of the best hybrids.

The collection, which was supplied by Julius Roehrs Company, is one that is greatly appreciated by Mr. and Mrs. Candler, Jr., both of whom are keenly interested in the orchid.

ORCHID EXPEDITION TO TROPICS

GEORGE H. PRING, the horticulturist to the Missouri Botanical Garden, has started for Panama and Colombia for the purpose of organizing an expedition into the mountain regions of parts of South America to collect orchids as well as certain interesting economic plants. Before making such a trip it was necessary to obtain a special permit from the Federal Horticultural Board of the Department of Agriculture, in order that the *Cattleyas* and other orchids best known to the public might be admitted. These plants, with many others, were formerly imported by the thousands, but since the enforcement of

"Quarantine Number 37" very few have entered the country. The fact that the Missouri Botanical Garden is prepared to combat any injurious insect or fungous pest which may happen to inhabit the collected specimens was undoubtedly a factor in obtaining the necessary permit.

During the recent annual orchid displays the visitors have repeatedly manifested a desire to see an exhibition of orchid flowers arranged in masses, similar to the chrysanthemum show. The habits and manner of growth of orchids do not permit their propagation in the same way as chrysanthemums, and it is necessary to secure the plants from their native home. Therefore, in order to bring the orchid show to the same high degree of excellence as the "mum show" and similar exhibits it becomes necessary to obtain the popular favorites in quantity. With this in view the expedition to the tropics is being planned. The genus *Cattleya* includes many species which flower at different months of the year.

The favorite haunts of the various species of *Cattleya* are the mountain ranges of Colombia, Venezuela, Guatemala, Ecuador, British Guiana, and Brazil, each variety being practically indigenous to a special locality. The species most desired at the Garden are those flowering in January and February, and these are *Cattleya Trianae* and *Cattleya Schroederæ*. The former is found in the upper Magdalena near Natagaima on the Saldana River of Colombia and the latter in the Llanos de Cassanare on the Venezuelan border of the same country, two widely separated regions particularly when the difficulties of transportation are borne in mind. Despite this fact it is hoped that sufficient plants may be collected and brought back to St. Louis, so that the most notable exhibition of orchids ever held at the Garden may be made during the early part of 1924.—*Missouri Botanical Garden Bulletin*.

DELPHINIUMS AND DEEP CULTURE

THE failures I have met with have all been through lack of appreciation as to the requirements of these quick-growing herbaceous subjects. On loamy soils it is not a very difficult matter to conserve moisture, and it is when such provision is made for *Delphiniums* that the roots find sustenance deep down throughout the period prior to blooming. We are not all, however, in the happy position of having a loamy soil to deal with. Some have to contend with a soil of a sandy or gravelly nature, through which water quickly percolates, and *Delphiniums* betray lack of food. It is all the more reason why any deficiency should be made up to them, as in the absence of food, no flowering plants in the garden cut so sorry a figure as these. Even those who are handicapped in the nature of their soil can obviate to a very large extent any possible failure with these plants by working into the base vegetable refuse as well as manure.

One of the lessons I learned early in life was the manner in which a good grower of *Delphiniums* treated his shallow soil by making use of decaying vegetation and in mulching the roots during the growing season. There is one point which is sometimes overlooked concerning these plants, and it is the rapidity with which most of them grow, necessitating the clumps being divided at certain intervals if they are to be kept within reasonable limits. It is not unusual to see large clumps carrying far too many spikes, the centres being poor and indifferent, consequent on their not being able to obtain the needful moisture. It is the moderate-sized clumps, with a cool run that always make for beauty in a garden.—*Gardening Illustrated*.

IN APPRECIATION OF ANNUALS

THE culture of hardy and half-hardy annuals is regarded more seriously than in former years; indeed, few English gardens are now reckoned complete without a liberal quantity of these short-lived plants. Time was when annuals were regarded with more or less contempt, except in the case of such subjects as Asters, Balsams, and the so-called florist's flowers. Of course, the skilled attention of hybridists and specialists has had much to do with their increased popularity. Who will deny the rapid advance that has been made in the development of annuals during the past decade? When we come to consider the marvellous creations which have been evolved in such races as Clarkia, Larkspur, Candytuft, Godetia, Chrysanthemums, Lupin, and a host of others we cease to wonder at their repute. But this is not the only reason why annuals have come to be more favorably regarded. The somewhat tardy recognition of their adaptability to the modern and less formal style of gardening will largely account for their present position in the popular taste.

By judicious and successful sowings in Autumn and Spring it is possible to have a display of annuals from April until far into the Autumn. This alone is a recommendation. In the perennial border, too, they may be made to serve a useful purpose. By sowing suitable kinds between the permanent occupants, so as to give a show of bloom before or after their associates, one is soon made aware of their utility. In the rockery, also, many kinds may be introduced for the same purpose. Indeed, several sorts are seen to the best advantage when growing among stones, while they certainly find a more congenial home when growing in the bed or border. Many rock gardens are particularly bare at certain seasons of the year, but there is no lack of annuals for providing the continuation of bloom which will fill these uninteresting periods. And so we have annuals for all purposes. The border in shade is as easy to cater for as the one in full sunshine, while suitable sorts can be found for dry or moist situations. Neither should we overlook the value of annuals for cutting. Many kinds are valuable for cut bloom, and, as everybody knows, the periodical cutting of bloom is really the best way to prolong the flowering period. Then, again, we have a wealth of sweetly scented annuals which contribute much to the charm of the garden.

I suppose the chief reason why annuals were once in disrepute was the lack of attention bestowed on their culture. Any sort of cultivation was considered good enough for these short-lived plants. It is now recognized, however, that good culture and generous treatment are worth while in growing annuals. As a matter of fact, the ground should be prepared for them as thoroughly as it is for perennials. Many annuals under good treatment compare quite favorably with some of the choicer kinds of perennials.

There is one point I would emphasize in regard to growing annuals. As they are short-lived plants, any errors of culture or neglect in timely attention cannot be repaired as in the case of perennials. The matter of sowing, thinning, and transplanting, the removal of dead flowers, and all the minor details of culture must be seasonably and properly performed in order to be successful. To remove the flowers before seed matures is particularly important. The reader is reminded that the function of a plant is to reproduce its species, and after it has attained this object there is no further need for its existence. Therefore by deferring this process for as long a period as possible we are prolonging the life of the plant, and incidentally inciting it to further efforts at flower production. There is considerable scope for the beautifying of gardens by the employment of annuals, and many pleasant surprises are in store for those who are willing

to pay for seed of the best strains and who will devote care and patience to raising and growing them.—*Gardening Illustrated*.

GARDENING UNDER GLASS

THE writer has often heard experienced gardeners remark that there is such a variance between out-door and in-door plant culture that a thorough knowledge of one does not supply the necessary knowledge to succeed with the other, and that both require separate experience and practice. It remained with a well known writer on horticultural subjects, F. F. Rockwell, himself an enthusiastic gardener, to contend in his book just published, entitled "Gardening Under Glass," that if you have been successful with your plants and flowers out-doors, you can be successful with them under glass.

Expert growers, those who grow the wonderful specimen plants which we see exhibited at the big flower shows, will refute such a statement as being ridiculous, and from their viewpoint they are absolutely correct, for only after years of experience have they acquired the ability to produce such plants. But those who grow merely for the pleasure they derive from it, are not thinking of competing with the experts whose equipment is usually different.

After one reads "Gardening Under Glass," he really feels that all he requires is a greenhouse and all will be easy. One who loves to work among flowers will find this book a most helpful and inspiring guide. True, like the bride with cook book in one hand and kitchen utensils in the other, he is bound to meet with some disappointments in his first efforts, but with a little perseverance, success will follow his endeavors with the pleasure it brings.

The book is entertaining as well as instructive. It is not filled with technical phrases that are foreign to the layman but it is worded in language so understandable that one feels it is all so simple that he at least cannot fail to have a lot of fine plants equal to those of the more experienced gardener. It is a volume full of inspiration and encouragement.

Mr. Rockwell covers every subject that enters into "glass gardening" from the "fascinating art of soil building" to growing fruits in pots twelve months of the year. Ventilating, heating, watering, plant foods, plant enemies and their control all receive careful consideration, assuring the reader that there is nothing to worry about when once he knows how.

The chapters on how to grow flowers for cutting, flowering and foliage plants, bulbs, fruits and vegetables under glass, are so instructive as to make the book invaluable to any one owning a greenhouse or contemplating having one. There are chapters devoted to what can be accomplished the year round; chapters on all kinds of greenhouses and what can be grown therein. The illustrations are many and show glass gardens that are within the reach of those of moderate means as well as houses more elaborate to conform to any style of architecture. They also show how much and how varied a collection can be grown in a small house by any one so fortunately equipped.

The writer advises anyone who has desired a greenhouse, but who has hesitated for fear that he would not know what to do with it after he owned it, to read the book, "Gardening Under Glass." Then he will no longer hesitate. Practical gardeners who would welcome suggestions to guide them in their greenhouse work the year round will find this book a most helpful aid. It costs \$3.50 and may be attained through the GARDENERS' CHRONICLE.

Foreign Exchange Department

VARIEGATED FOLIAGE.—One does not regard anæmia as an agent enhancing beauty in the human subject; on the contrary, every effort is made to counteract the mischief. Why, then, will florists perversely promote its equivalent—deficiency of chlorophyll—in plants? The few phanerogams, *i. e.*, flowering plants, which are normally devoid, or nearly so, of chlorophyll, are degenerates, either saprophytes like the Bird's Nest (*Neottia*) or thorough-going parasites like Dodder (*Cuscuta*), drawing nutriment from the store honestly accumulated by other plants by means of the chlorophyll in their foliage. Nevertheless, I venture to plead for one exception to the rule in this matter. The Golden Queen Holly, a variety of immemorial antiquity, when well set with scarlet berries, is no unworthy companion and offset to the natural green type. *Gardening Illustrated*.

VIBURNUM CARLESI IN POTS.—There are few lovers of sweet-scented flowers who do not long to grow some of the choice Daphnes. Where they fail with the latter the above-named variety of Viburnum may be substituted, and certainly both kinds of plants should be included in the collection if this be convenient. Viburnum Carlesi is very free-flowering, pure white, and very fragrant. There is one drawback with regard to the plant itself, namely, the paucity of leaves at the time of flowering. As a pot plant in the greenhouse the lack of leaves will not be very noticeable if other well-foliaged specimens are judiciously arranged near. I think that more of the free-flowering shrubs that are suitable should be grown in pots specially for the cool greenhouse or conservatory. *Gardening Illustrated*.

SHIRLEY POPPIES.—These have been improved almost out of recognition, and that they give a magnificent display cannot be disputed. Very few plants give such a wealth of bloom for cutting, and if the blooms be ephemeral, yet, so long as seed pods are not allowed to form, there are always fresh supplies. Many permit Shirley Poppies to grow too thickly and neglect providing supports for the plants. Let the plants be thinned until every one has at least a square foot in which to develop, and then put Spruce twigs or similar material thickly among the plants. These twigs may be 2½ feet in height, and as the Poppies make progress, the supports will soon be hidden from view, and the plants will be protected alike from rain and from gales. *Gardening Illustrated*.

SHRUBS UNDER TREES.—In making a selection of shrubs for such a purpose it is necessary to know whether the trees are of dense growth, under which very few plants will thrive, or thin-headed trees under which numerous kinds may be grown. As a general rule, most shining-leaved shrubs will thrive as undergrowth beneath the shade of trees, but, in any case, the soil must be well prepared for them at the outset. If the trees have been planted within recent years, and the soil is tolerably good, but little preparation is necessary beyond deep digging; but if the trees are large and old, then the soil will be found overrun with roots and impoverished. In this case fresh soil should be substituted (say, from 9 inches to 12 inches deep), and in this the shrubs intended for undergrowth should be planted. The small shrubs should be vigorous and with plenty of roots, and the best time to plant is during September and October, allowing the leaves that fall from the trees to remain among them through the Winter. The choice may be made from the following list: Common Holly, Berberis Aquifolium or Mahonia, common Box, Oval-leaved Privet, Portugal Laurel, Rhododendron ponticum (if no chalky matter is in the soil), Cotoneaster Simonsi, Skimmia oblata, Berberis Darwini, Berberis japonica, and common Yew. All these are evergreen, and may be obtained at a cheap rate in nurseries. For very dense shade we have found nothing better than the Butcher's Broom (*Ruscus aculeatus*), with an undergrowth of the creeping St. John's-wort (*Hypericum calycinum*), Periwinkle, and Ivy. The common English Ivy grows naturally in dense shade, but the Irish Ivy has a bolder effect. Gaultheria Shallon may be planted in light or peaty moist soil, and a good carpet-like growth may be had of Euonymus radicans and its variegated form. There are few deciduous shrubs that will grow under trees. *The Gardeners' Chronicle* (British).

FRAGRANT PLANTS IN THE PAVED PATH.—For planting between the stones of the paved pathway, there is nothing better than some of the fragrant plants. It is needless to enter into detail of the plants which may be so utilized, but the Thymes may be mentioned as invaluable, especially the smaller species and varieties, for there is nothing better than the tiny but highly perfumed Mentha Requienii (syn. *Thymus corsicus*). It is difficult to keep the paved path free from grass and weeds if the joints are left open, and I would suggest cementing the joints, only leaving a sufficient number of openings for the plants desired. This will save an immense amount of work in the future, and if more

plants are desired, additional openings can be easily made. *Gardening Illustrated*.

PRUNING NEWLY-PLANTED TREES.—To prune or not to prune is the question. Is it better to inflict two hardships at the same time upon a tree or one hardship? There can scarcely be a doubt in an impartial and thoughtful mind as to the answer. What are the facts? A number of young trees has been lifted in order that they may be replanted 20 yards or 200 miles distant. Some injury or check has been given to the root-system of the tree, even if it did not lose a rootlet or part of a rootlet. The mere exposure to the air will cause a check to the activity of the root-system. If that be so in the case of trees lifted with the greatest care and regardless of cost, how much more is injury caused when a tree loses a distinct portion of its root-system in the act of lifting, as occurs in hundreds of thousands of cases every year! It is well, therefore, to recognize the fact and to take thought accordingly. It is beyond question, then, that a tree which has been transplanted has suffered some injury to the roots; and we are dealing with the question of pruning that tree and the time of performing the operation. My advice is—defer the operation, at all events, until the sap is circulating from the roots to the branches in Spring, and which is shown by the distinct swelling of the wood-buds near and at the ends of the shoots of this year's growth. Many young fruit trees have perished from no other cause than that of pruning at the time of—or soon after—planting. *Gardening Illustrated*.

Horticultural Jottings

The fruit of the mayflower, or trailing arbutus, is reputed to be of rare occurrence. Certainly it is rarely seen; it has hidden itself for centuries among the leaves and moss. To be found, it must be sought lovingly, if not indeed reverently, upon the knees. Furthermore, it must be sought at the right time, and that time is when wild strawberries are ripe.

It is a curious and remarkable fact that a plant so universally known and so well loved for the beauty, charm, and fragrance of its flowers, should have been unknown as to the character of its fruit. Before the year 1913 none of our botanists adequately and correctly described it. The mayflower has not a dry pod, but a white-fleshed edible fruit as juicy as a strawberry, though of smaller size.

The Japanese have surprised us in this matter, for they class their species of trailing arbutus as one of their edible wild fruits.

The fruit of the mayflower is not in reality rare. I have found hundreds of them in a woodland pasture in New Hampshire in a single forenoon. *Frederic V. Coville, in "The National Geographic Magazine"*

An old-fashioned flower garden will be a feature of the White House grounds this year, in compliance with a request made by Mrs. Harding. The garden is now being laid out and will contain chiefly the flowers that grew at her Marion home, of which she is especially fond. The new garden will be located in the eastern part of the rear yard, at a point not far distant from the White House Rose garden, and in it will be grown such homey plants as Morning Glory, Pansies, Forget-me-nots, Asters, Snapdragons, Foxglove, etc. Mrs. Harding is especially fond of Hollyhocks and Lilies of the Valley, and for these two special beds will be arranged immediately adjacent to the gardens proper. Another feature of the White House gardens during the coming summer will be the Mrs. Harding Rose, which was raised in the Department of Agriculture grounds. *Florists' Exchange*.

Old Tut-ankh-Amen died about 3,000 years ago, but in the National Park of California are two Sequoia trees, the General Grant and the General Sherman, that were born about 1,000 years before the Egyptian monarch and they're alive yet. What's the use of going to Egypt to see old dead things when you can see older live ones in your own country?—*N. Y. Times*.

To commence preparations for a centennial celebration fifty years before the actual date would seem a trifle premature in the ordinary instance, but in the case of Arbor Day, to be observed in 1972 under the auspices of the American Tree Association, it is perfectly natural because it takes at least five decades for many trees to attain maturity. Aside altogether from the aesthetic aspects of the campaign, however, the economic angle should not be forgotten. What is the value to a city, that is to say, of many trees planted in its midst? Springfield, Mass., which is said to have more trees per inhabitant than any other American city, lists its 25,000 trees among its financial assets at a total of \$2,500,000. This fifty-years-ahead campaign is one which should exercise a wide appeal and deserves an enthusiastic response. *C. S. Mottor*.

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa. (Date not decided.)

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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TRUSTEES AND BOARD OF DIRECTORS MEETING

During the week of the New York Spring Flower Show, a meeting of the Trustees and Board of Directors was held at the Murray Hill Hotel, New York. The meeting occurred on March 13 with the following members of the Board present: Robert Cameron, George F. Stewart, Massachusetts; Harold Bryant, Connecticut; John Barnett, John Tonkin, Pennsylvania; Robert Brydon, Ohio; Alex Michie, James Stuart, H. E. Downer, Montague Free, New York; Thomas W. Head, Arthur Smith, D. L. Mackintosh, M. C. Ebel, New Jersey. President John Barnett presided.

President Barnett called the meeting to order at eleven o'clock.

After the routine business, such as the reading of the minutes of the last meeting, reports of the secretary and treasurer was disposed of, there was a general discussion regarding the affairs and future policy of the association. Mr. Cameron spoke for the Committee on Training Young Men, reporting that considerable interest was being manifested in the course conducted at the Massachusetts Agricultural College in co-operation with the association and that while the attendance for the first year was not large, it is expected that the enrollment will be increased for the coming year.

The interest and general activity that has developed among the local branches was favorably regarded as showing that the gardeners in different parts of the country are beginning to realize what an important factor for the welfare of their profession these branches can be made. They give the gardeners who can not attend the annual conventions an opportunity to keep informed on what the association is doing and also a voice in its administration by permitting them to make recommendations to be submitted at the annual conventions. Mr. Head told of the meetings of the Monmouth Co., N. J. and the Elberon, N. J. horticultural societies, which he addressed on the subject of the national association with a view to organizing a branch, and that the suggestion was so favorably received that the two societies decided to combine in organizing a local branch. Mr. Brydon reported on the enthusiasm with which the proposal to form a branch was received among the members of his locality, and of its organization. Mr. Stewart and Mr. Cameron spoke of the lively meetings and the good fellowship that prevails at the Boston branch meetings, stating that the last one had been so successful it had been decided to hold another within a month. President Barnett stated that the Western Pennsylvania Branch has interested itself in the coming convention with every member an enthusiastic worker towards making it a highly successful event.

The dates, August 14, 15, 16, 17, proposed by the Western Pennsylvania Branch for the annual convention were approved by the Executive Board. President Barnett announced that the Fort Pitt Hotel had been selected as the convention's headquarters.

A letter from William Gray was read, announcing his retirement from the professional field to engage in commercial work, and accordingly tendering his resignation as vice-president, and accepted with regret. (By a strange coincidence, the sudden death of Mr. Gray, reported elsewhere in these columns, occurred on the day his resignation was being considered.) President Barnett then appointed R. B. Brydon, of Cleveland, as vice-president, which appointment was approved by the Board.

At one o'clock the visiting members were entertained at luncheon by the New York and New Jersey members, after which the business session was resumed. Matters of special import to the welfare of the association and the gardeners in general received the attention of the Trustees and Directors, followed by a Round Table discussion which lasted till four o'clock. One of the interesting discussions was that of the gardeners' opportunity of attending the annual conventions, many contending that they find it almost impossible to get away from their work at any time. The members of the Board voiced the opinion, however, that in many instances it was due to the gardener not presenting his case properly to his employer; that the gardener is as equally entitled to his vacation as those engaged in other professions, and that if the employer were consulted, he no doubt would see the logic of such a contention. Another subject discussed was that of the apparent thoughtlessness of many employers towards their gardeners in the matter of remuneration, that some appear to overlook entirely the compensation of their gardeners while everything else that has mounted high in cost, has been generally accepted. It was the general opinion that while it might be possible to direct the attention of the employers to this oversight, it was a matter of negotiation between employer and employee, and as in other cases, would be remedied if presented in the proper manner.

Four o'clock came about entirely too soon, but as the out of town members desired to have an opportunity to visit the International Flower Show before returning to their homes, the meeting had to adjourn at that hour.

BOSTON BRANCH MEETING

A well attended meeting of the Boston Branch of the National Association of Gardeners was held at Horticultural Hall, Boston, on April 6, the second day of the Spring Flower Show of the Massachusetts Horticultural Society. Robert Cameron presided, and brought up the proper rate of pay which boys and college youths should receive while working on private estates. Mr. Cameron especially commended Italians as efficient and dependable workmen. James Marlborough, Stuart Forbes, George F. Stewart, A. K. Rogers, B. Hammond Tracy, W. N. Craig and others spoke on the subject. The consensus of opinion was that college youths were worth at least as much as ordinary laborers but much would depend on the boys themselves. Some would be more valuable than others and no flat rate could be recommended.

Mr. Cameron, Mr. Stewart, and Mr. Watt gave their impressions of the New York Show. Mr. Stewart spoke of the last directors' meeting held in New York and detailed business transacted. There was some discussion on the coming Pittsburgh convention and it was unanimously voted to hold a meeting early in August in advance of the convention and discuss possible timely subjects which might prove of interest to the annual convention.

W. N. CRAIG, Secretary.

CLEVELAND BRANCH

It has been decided to hold the next meeting of the above branch at the Alhambra Restaurant, Cleveland, on April 30, instead of May 7, as previously stated. The time will be seven o'clock.

GEORGE WYATT, Secretary pro tem.

WESTERN PA. BRANCH

A meeting of the Western Pa. branch of the National Association of Gardeners was held in the public school, Sewickley, on March 20. The secretary called the meeting to order and announced that owing to illness of the chairman, Manus Cufuran, was again unable to be with us. A motion was made and carried that David Fraser be elected chairman for the evening.

The chairmen of the various committees reported progress. Mrs. William Thompson was appointed chairman of the Ladies' Committee. John Barnet reported that the Executive Board had approved the national convention dates, August 14, 15, 16, 17, at the Fort Pitt Hotel, Pittsburgh. Mr. Barnet also gave a short but interesting talk on the New York Flower Show, which was greatly enjoyed by the members present. Our next meeting will be held April 17 at the Carnegie Library, Pittsburgh. A cordial invitation is extended to all members and friends to attend the meetings of the Western Pa. branch.—HENRY GOODBAND, Secy.

AMONG THE GARDENERS

H. D. Prosser has accepted the position of superintendent on the Paul D. Cravath estate, Locust Valley, L. I.

Charles Davis, foreman of the Daniel Gugenheim estate of Port Washington, L. I., has secured the position of gardener to Charles Guthrie, Reading, Pa.

Frank Jenkins, formerly superintendent of the L. B. McCarter estate, Rumson, N. J., is now superintendent to E. J. Dives, Reading, Pa.

William Chalmers, recently gardener on the A. K. Lawrie estate, Williamstown, Mass., has taken the position of gardener on the D. H. McAlpin estate at Morris Plains, N. J.

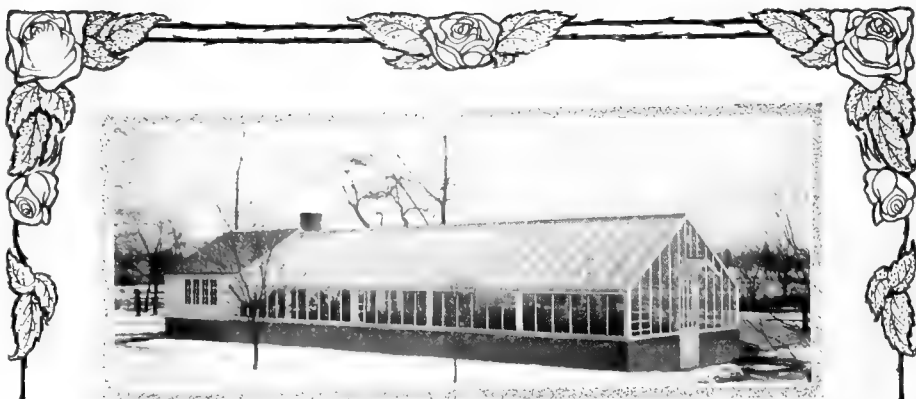
Charles Milburn has secured the position of gardener to William De Forest Manice, Old Westbury, L. I.

It was incorrectly reported last month that Martin Kuiner had accepted the position of gardener to Frank B. Black, Mansfield, Ohio. This position was secured by John Kullman, formerly of the H. S. Sherman estate, S. Toledo, Ohio.

Jerome B. Murphy, until recently gardener of the W. B. Dickerman Estate at Mamaronock, N. Y., has secured the position of gardener on the Charles Hirshon Estate, New Rochelle, N. Y.

Alexander Douglas, formerly superintendent of the L. B. McCarter estate, Rumson, N. J., accepted the position of superintendent on the L. B. McCarter estate, Rumson, N. J.

James D. McAlpin, formerly superintendent of the D. H. McAlpin estate, Morris Plains, N. J., accepted the position of superintendent on the D. H. McAlpin estate, Morris Plains, N. J.



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plant lice were alive after one dusting with AXFIXO on potatoes. This is the result obtained by the New Jersey Agricultural Experiment Station, last year. You, too, can have the same results if you follow the simple directions on the container.

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Max Aubertel, formerly at Stamford, Conn., is now located as gardener at Wilburton Farms, Manchester Depot, Vt.

William Eccles, formerly superintendent of the Mortimer Schiff estate at Oyster Bay, L. I., and more recently of the F. F. Drury estate at Cleveland, has purchased the orchid growing establishment of Thomas Jones, Short Hills, N. J., and will devote himself to raising orchids for the market.

John Forbes, until recently superintendent of the A. V. Davis estate, Oyster Bay, L. I., has embarked in business for himself at White Plains, N. Y.

George Palmer, late of Lenox, has accepted the position of head gardener to Mrs. R. M. Saltonstall, Chestnut Hill, Mass.

William Gray, well known in gardening fraternities and until recently a resident of Newport, R. I., died suddenly at the home of his father at Middletown, N. Y., on March 13, to which city he had moved to assume charge of his father's florist business. Mr. Gray was vice-president of the National Association of Gardeners, and it seems a strange coincidence that on the day of his death his resignation, which he had tendered owing to his retirement from the gardening profession, was acted on by the Board of Directors. Mr. Gray came to Newport in 1893 and for the greater part of the intervening 30 years, except a brief time when he was employed on Long Island, had made his home here. He was first on the Twombly and Auchincloss estates, and after his return from Long Island was gardener at the Leeds estate, serving in that capacity until last Autumn, when the Princess Anastasia (Mrs. Leeds) sold the property to Mr. James B. Duke. Mr. Gray had been an active member of the Newport Horticultural Society, serving several years as recording and financial secretary, and last year was one of its vice-presidents. Not only had he been active as an official, but he was an exhibitor in the local society's flower shows and in Providence, Boston and New York. Specializing in sweet peas, his exhibits won many prizes and gave him a widespread reputation as a grower of this variety of flowers. He was courteous and obliging and won many friends by his willingness to help others with advice, material assistance and information.

Mr. Gray was born in 1874. He is survived by his widow and three daughters.

William Thomson, aged 70, died in his home, Sewickley, Pa., on March 9, following an attack of pneumonia. Mr. Thomson was born in Sigglesworth, England, and came to America when he was 27 years old. He was engaged in gardening in Erie, Pa., for several years and later came to Sewickley to manage the garden of Mrs. Mary Copley Thaw on Sewickley Heights. For the past ten years he has been in charge of the greenhouses of the Joseph Craig estate.

Mr. Thomson comes of a family of flower-lovers, being the fourth William Thomson in the direct line to devote his life to horticulture; his eldest son, William Thomson, Jr., is in charge of the gardens and greenhouses of Mrs. William P. Snyder, Sewickley Heights. Mr. Thompson's widow, another son, Robert, and a daughter and two sisters also survive him.

LOCAL SOCIETIES

HORTICULTURAL SOCIETY OF NEW YORK ANNUAL MEETING AND FLOWER SHOW

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The show, which is held in the Main Building of the New York Botanical Garden, will be staged and judged on Friday, May 11, and will be open free to the public on Saturday and Sunday, May 12 and 13.

Schedules with prize list and full information are now ready, and may be had on application to Mrs. George V. Nash, Secretary Exhibition Committee, New York Botanical Garden, Bronx Park, New York City, or the office of the Society, at 598 Madison avenue, New York City.

NASSAU CO. HORT. SOCIETY

The monthly meeting of the above society was held on Wednesday, March 14, in Pembroke Hall, at 7 P. M. President James Gladstone occupied the chair. H. S. Freeman, of New York City, was elected to active membership at this meeting. Messrs. James McDonald, J. Michie and John Forbes judged the exhibits and their decisions were as follows: Twelve Pink Carnations, first, James McCarthy; twelve White Carnations, first, William Carter; twelve mixed Carnations, first, William Carter; three Pots of *Primula malacoides*, exhibited by James McCarthy, honorable mention. It was decided to hold a Tulip Show in May. The Chrysanthemum Society's rules will be used at our future Mum Shows. President Gladstone presented the Hitching Cup to Thomas Twigg. The cup was awarded at the Mum Show for four varieties, three of each. Exhibits for April meeting, six tomatoes; 12 mixed *Antirrhinums*; pot or pan, not to exceed ten inches, of Tulips.—ARTHUR COOK, Cor. Secy.

STAMFORD HORT. SOCIETY

The regular monthly meeting of this society was held on the 2d of April. There was a good attendance of members, and many fine exhibits were staged which brought out much discussion later in the evening. M. J. Quirk carried off the first prize with a vase of Hadley roses, also a cultural certificate for same. Other awards were as follows: M. J. Quirk, *Ophelia* 75 points, *Columbia* 75 points, carnation seedling and snapdragon very highly commended; *Didiscus cerulea* by W. J. Slade; carnation, *Melville Francaise* by A. Pederson.

Plans for a summer show were finally settled with much enthusiasm. At the mid-monthly meeting, April 17, President Gribelle of the Stamford Chamber of Commerce will lecture. The supper of the above society, held March 24, was a splendid success. The committee deserves great commendation and is now going ahead with its plans for the coming month to hold a Eureka affair. At the conclusion of the business a social hour was enjoyed. —E. A. WHITTING, Secy. C. L. SEAR.

WESTCHESTER CO. SOCIETY P. P. C.

The Westchester County Society for the Prevention of Cruelty to Children will repeat this Spring the series of Garden Days, held on Saturday afternoons during May and June throughout the county which proved so popular last year. These gardens extend from one end of the county to the other and a great variety of garden may be seen, from the large and formal garden to the small and friendly one, all of them a joy and delight to the true flower lover. All are



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worthy of a visit. The complete list of gardens, with the dates of admission, will be published later. Calendars may be obtained from the Westchester County S. P. C. C., 107 Warburton avenue, Yonkers. The hours of admission are from three until six o'clock in the afternoon. The admission fee is only fifty cents which will all be spent to help and comfort little children of the county who are in sorest need of such aid.

WESTCHESTER (N. Y.) AND FAIRFIELD (CONN.) HORT. SOCIETY

The regular monthly meeting of this society was held in Greenwich, Conn., March 9. Quite a few members were present. One new member, George Bates, was elected for membership, and one proposed. Judging by the splendid exhibits at the past few meetings, there will be keen competition for the greatest number of points for the year. At the meeting, Edwin Beckett received first for a pot of *Phalaenopsis Schilleriana*; W. J. Sealey, second for a standard *Heliotrope*, and John McCarroll, third, for a vase of Stocks. Other exhibits included vase of Roses, W. D. Robertson; *Primula obconica*, H. F. Bullpitt; Sweet Peas, Walter Slade; Lupines, John McCarroll. H. F. Bullpitt received first for two bunches of Rhubarb.

Progress for the Fall show is well on the way. James Stuart gave a very interesting talk on Cyclamen; his address led to considerable discussion. P. W. Popp gave an interesting talk on his last trip through the South and West, describing horticultural conditions prevailing in both parts.

A. KNEUKER.

TARRYTOWN (N. Y.) HORT. SOCIETY

This society held its meeting March 21, in the Corporation Building. The weather was ideal, and a full attendance was present. The exhibition tables were well filled with a large variety of plants and cut flowers. Alex. Anderson received first prize for Sweet Peas, as well as the prize for the best display in the hall other than Sweet Peas. He captured this prize with two large vases of very fine *Antirrhinums*. Other displays worthy of mention were some fine *Primulas* shown by John Honeyman, *Antirrhinums* by Mr. Fisher of Briarcliff, and displays of Tulips, J. Watterson, Thos. Lee and others. The judges were J. Featherstone, J. Watts and Wm. Graham.

Six nominees were elected to membership. Since our last meeting this society has lost a member in John Walker of Scarsdale, N. Y., who suddenly passed away through an attack of acute indigestion. After the reading of the notice, Pres. Wilson asked the members to rise for a minute of silence as a token of respect for our deceased member.

Tarrytown taxpayers have voted an appropriation of \$4,500 for the use of the society in carrying on the work which it started last year in the preservation of the shade trees of the town. This is a work which the society went into last year with such splendid results that it now has the backing of the largest taxpayers of the town. This beginning may lead to larger developments.

At this meeting the society voted to hold two shows this year, one in September and one in November. After business was finished and exhibits discussed, Pres. Wilson invited Walter Weston to the platform for the purpose of giving an essay on Boxwood. Mr. Weston talked along the line of the care of Boxwood at the different seasons.

WM. GRAHAM, Cor. Sec'y.

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I have only been with Dr. Ayer a short time, but I understand that you have served him satisfactorily over a period of years. Some of the surgical operations performed last year were very difficult, and a recent inspection proves that they are holding perfectly.

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A tree on the Dr. J. C. Ayer Estate



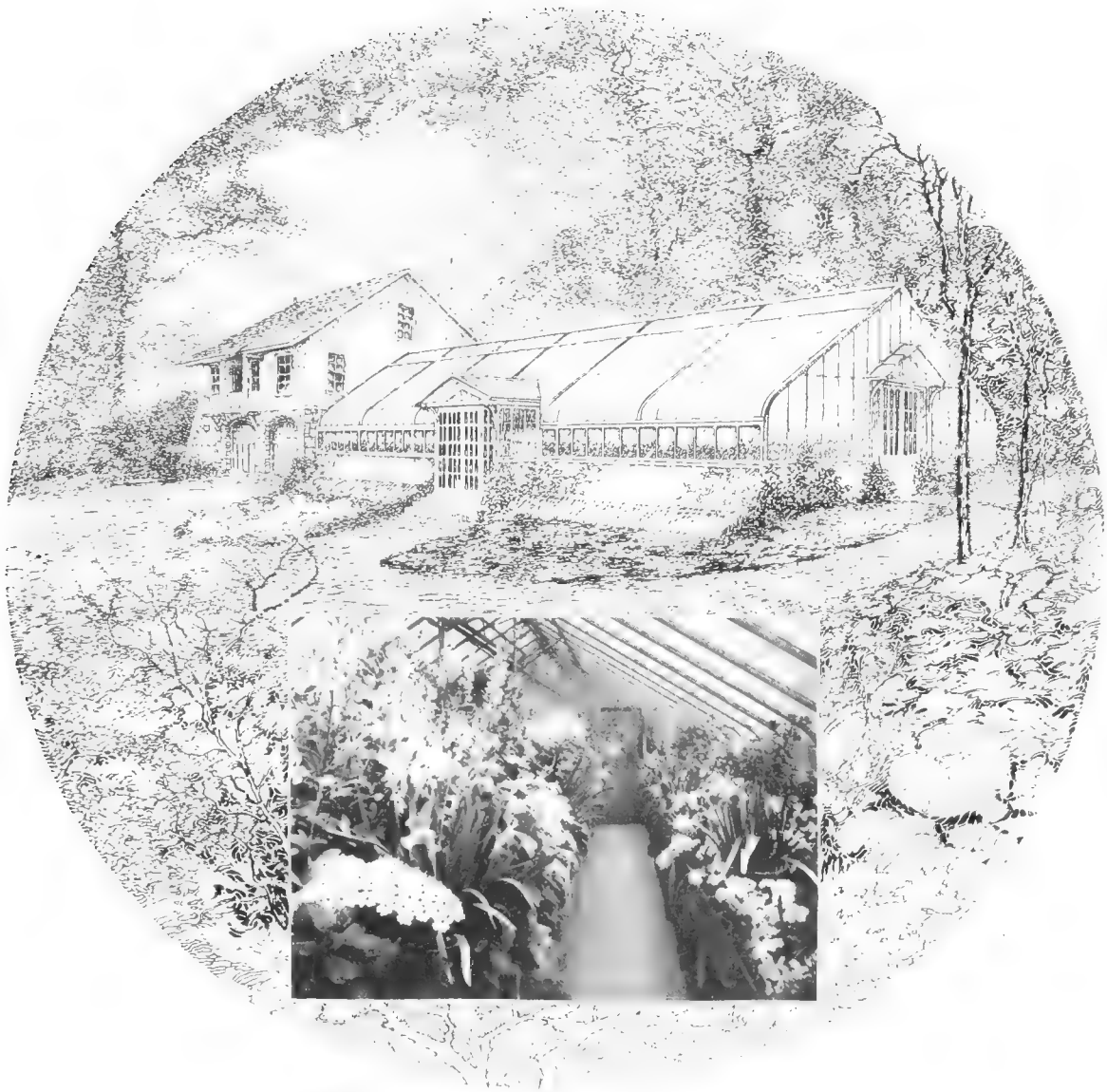
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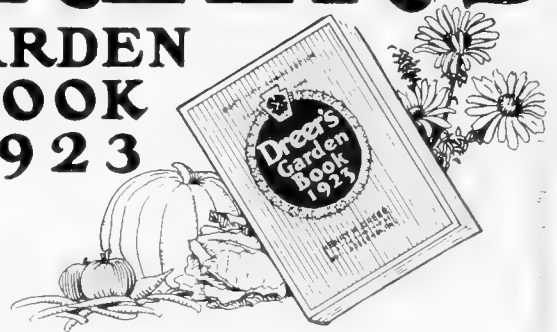
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

May, 1923

No. 5

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THE coming of Daylight Saving or "Summer Time," as it is commonly termed in Great Britain, should be welcomed enthusiastically by every true garden lover. The only argument of much weight which I have heard advanced by gardeners or commercial flower growers against this measure is, that it is necessary to keep a man on duty at the greenhouses an hour longer to attend to the necessary watering and ventilation. This should be easily arranged on private estates, much more readily than the Sunday "duty." Of course, there are to be found objectors to this and every other man-made scheme by those who swear by what they piously term "God's Time" which was itself changed long before the introduction of Daylight Saving. Massachusetts, a great industrial state, holds fast to it and the opposition of agricultural interests has dwindled with the change from a seven to a five month Daylight Saving period. There is every reason why gardeners, and all garden owners and garden lovers should welcome the change; the long, pleasant evenings which can be spent in the garden, and the extra hour when many amateurs can till the soil in their little gardens should many times outweigh the need of keeping someone at the greenhouses a little longer. The old, familiar argument trotted out each season that men cannot be put to work because there is dew on the plants is all but obsolete. The gardener, or farmer, unable to find work for his assistants when vegetation is damp should get into another business. I have always considered Daylight Saving a great horticultural asset—many millions in America are enjoying it annually and some day I hope the opposition from agricultural interests will pass and that all of our citizens may enjoy it as they did during the war period.

* * *

At this season when the country is very beautiful, fields verdant, woodlands a perfect joy with the multiplicity of green hues on trees and shrubs, gardens and orchards rich with bloom, and song birds musical on every side, how saddening it is to notice so much of the beauty, peace, and repose of a landscape disfigured if not destroyed by these abominable billboards. At one time they were mainly along our railroads, but the advent of the automobile has changed all this. It is true that some legislatures have passed laws to deal with these commercial monstrosities, but these laws are as usual well punctured with loopholes and do not amount to very much. The National Association of Gardeners has on several occasions placed itself squarely on record against the repulsive, glaring bill-

boards flaunting along our highways and numbers of civic bodies are striving to free their respective communities from these nuisances, for surely billboards can scarce be classed as necessities. The levying of a heavy tax would no doubt reduce this crying evil. The billboards both disfigure and depreciate the value of property, for whatever violates the laws of harmony and beauty damages property values, and is a reflection on the good taste of the community. It is an excellent plan not to patronize firms which offend our eyes. Offenses to the ear and nose are restricted and often punishable, why not sights which offend our eyes?

Tulips are amongst the most popular flowers at present. The last few years have seen a steady decline in the popularity of the early blooming section, and a tremendously increased interest in the Darwins, Rembrandts, and May flowering varieties. These latter varieties are much more satisfactory for the amateur than the early type; they in nearly all cases grow taller and have a more stately appearance than the earlier, and while they flower somewhat later prove much more persistent and in numerous cases are very much better the second and third years if undisturbed. They do especially well in herbaceous borders, planted in clumps. It seems strange that in our parks, and public gardens hitherto so little use has been made of them. The general excuse advanced against their increased use is that as they bloom rather late, it delays the setting out of the regular Summer bedding. I am glad to note that many private estates now use this class of tulips entirely, both in mixed borders and in special beds, and I feel sure the general public would be willing to wait a few days longer for the more or less stereotyped arrangements of coleus, alternantheras, santolinas, acalyphas, geraniums, cannas, and even scarlet salvias, which adorn most of our public grounds, and too many private gardens today.

Of the May flowering tulips out of a large number of varieties the following, which are all of very moderate price, have with me proven most satisfactory: the Fawn, rosy fawn in color, shaded blush, very graceful and of an unusual color; Golden Crown, yellow edged with red; Mrs. Moon, very deep yellow, with reflexed pointed petals; Picotee, a good old variety; Inglescombe Yellow, often called the "yellow Darwin" with large globular flowers; Gesneriana major, rich deep scarlet with a bluish black centre, a popular Memorial Day tulip in some of our more northerly states; Gesneriana lutea, a splendid

golden yellow, the foliage is much heavier than on the red variety; *Le Rêve*, sometimes called *Sarah Bernhardt*, of a striking rose buff color, very large flowers, one of the most admired of all tulips, not infrequently listed amongst the early tulips; the old *Bouton d'Or*, also called *Ida*, is a good pure golden yellow; *Ellen Willmott*, soft creamy yellow in color with an elongated flower and reflexed petals is a very pretty sort; *Inglescombe Pink*, a charming tulip, rose pink, shaded salmon in color. *Leghorn Bonnet* has always been a favorite with me, it is pale yellow in color and some catalogues list it under the name *elegans lutea pallida*. *W. T. Ware* is a glorious deep yellow, the flower is large and lasts wonderfully. *Golden Spire* has a very large reflexed flower, deep golden yellow in color and edged with orange scarlet. Of a rather unusual color is *Fairy Queen*. The shade is a rosy heliotrope, with a margin of amber yellow. Some good tulips are left out of the foregoing list but those named have all proved very satisfactory in New England. There is a rather overwhelming predominance of yellows in the May flowering tulip section.

* * *

Speaking of tulips, how few there are who grow the very interesting species. While some of these make good garden plants, the bulk are more at home in a rockery. *T. Greigii* is the largest and most showy of this group, the bright crimson scarlet flowers have a black blotched centre and the foliage is variegated, the blotchings being dark. The latest of all the species to flower is *T. Sprengeri* with scarlet flowers. *T. Sylvestris* with yellow flowers is occasionally found wild in England and is found over quite a wide area in continental Europe. I have found this variety succeeds very well naturalized in grass land where the soil is well drained, not too rich, and the grass does not grow too vigorously. It is a graceful species with yellow flowers. *T. Kaufmanniana* is a native of Turkestan and has been in commerce about 50 years. It is the earliest of all tulips to flower and has proved to be a persistent variety. One clump I have in mind in a rockery has flowered freely for ten years; the flowers are very variable in color but are generally white, tinted with carmine, the centre is yellow. *T. cornuta stenopetala*, also called *acuminata*, has some of the characteristics of *T. Gesneriana* and is a good grower with red and yellow flowers. At the late New York flower show there were one or two exhibits of *T. Clusiana*, the "Lady tulip." This variety stands gentle forcing and succeeds very nicely in six-inch pans. It is one of the very best sorts for the rockery; the flowers are pale yellow, striped with red, and are very fragrant. Everyone at all interested in tulips should plant a few of this pretty variety. The little *T. Lownei* will appeal to those who have a rockery; it only attains a height of three to four inches; its flowers are white in color, tinged outside with purplish pink. *T. Turkestanica*, native of the mountains of Central Siberia and the Caucasus, is really a robust form of *T. biflora*. It is either pale yellow or white inside the flower and tinged with green, red, or purple outside. One remarkable feature of this tulip is that it often carries four to six flowers to a scape. *T. Hageri* is another fine rockery variety; flowers are generally red in color and the stalks average six inches in height. *T. Retroflexa*, a supposed garden hybrid between *Gesneriana* and *acuminata*, is a quite lusty grower with yellow twisted flowers. *T. Præcox* has purplish flowers, is slender in habit and attains a height of 15-18 inches. The brilliant *T. linifolia* is a dwarf grower, this variety comes from Bokhara. *T. præstans*, another Bokharan species also carries several flowers per scape; the color is orange vermillion. The species aforementioned have done very well in the vicinity of Boston, Mass., there are other good sorts which might

be added but I have named enough to provide an interesting and well varied assortment for any reader of the *GARDENERS' CHRONICLE* who may wish to try them.

*

There can be no question but that the most admired tulip at both the Boston and New York Spring flower shows this year was *De Wet*, sometimes called *General De Wet* and also *Fireglow*; as forced it is a peculiarly rich and glowing orange in color. Grown in the open it is a lovely golden yellow, flushed with fiery orange scarlet, and a most distinct and unique shade. In a collection it at once rivets our attention to practically the exclusion of all others. This belongs to the early flowering class of tulips, but the plants grow taller than the average earlies, more nearly approximating the Darwins in height. *Pink Beauty* in the last few years has become one of the most popular of all bedding tulips; its deep glowing rose color, becoming fainter towards the edges, its excellent habit, and fine lasting qualities, commend it to all tulip lovers. I do not think there is any finer pure white bedder than white *Joost Von Vondel*, some catalogues carry this under the name of *Lady Boreel* and when they do not give the synonym, purchasers unacquainted with tulips, are likely to buy this for a new variety. In its own particular color, satiny rose, *Prosperine* remains without a peer; it is one of our finest bedding tulips. In scarlets *Sir Thomas Lipton* is extra brilliant, *Rising Sun* is a grand deep golden yellow and is a somewhat taller grower than the average. *Golden Queen* pleases many, does not grow so tall as *Lipton*, and carries a large globular flower.

* * *

The forsythias have been wonderfully fine this season. In spite of the prolonged Winter we fortunately had no very low temperatures, and the forsythias, in common with some other deciduous flowering shrubs, escaped injury to their flower buds. On sloping banks, the old *F. suspensa* is still quite useful, and *Fortune's Golden Bell* is by no means a back number, but *F. intermedia* is far better and there is a form of *intermedia* called *aurea* which has deep yellow flowers and yellowish foliage which may appeal to those who admire leaves which are other than green. There is also a golden variegated form of *Fortunei*. *F. viridissima* is an old variety blooming a little later than other sorts, the bark is deep green in color and the plant is of compact habit. For those wanting but one variety I would recommend *F. intermedia* and do not plant them three feet apart each way as do many landscape architects unless you will be prepared to remove nine-tenths of them within three years. Forsythias need lots of room and are robust growers.

* * *

Amongst the very desirable early flowering shrubs which are of quite dwarf habit and are therefore valuable in the small garden I do not know of one which is attaining a greater popularity than the Korean *Viburnum Carlesii*. A popular name the "*Bouvardia* shrub" has been given to it as the dense terminal cymes of blossoms which appear with the leaves somewhat resemble the heads on *bouvardias*, and have a most delightful fragrance, a fragrance reminiscent of *Daphne Mezereum*, the may-flower (*Epigaea repens*), and that finest of all *bouvardias*, *Humboldtii*. As this shrub is very shapely, does not exceed four to five feet in height, proves perfectly hardy, flowers freely each year, with flowers which are lasting as well as fragrant, and as several nurserymen now offer it at a moderate price, here is something which many owners of even quite small gardens might well plant. There are many good *Viburnums* which are invaluable in landscape plantings, but *V. Carlesii* is of more moderate habit than any others, and none can approach it in fragrance.

In the Garden and in the Greenhouse

GEORGE F. STEWART

GARDENING is like very few professions. It largely depends on how closely we can co-operate with the natural elements. These, however, often act in a very erratic manner, and are beyond our control, at least out of doors, to a very large extent.—Take the past Winter here in Massachusetts; it has been like no other one, within the memory of many of our oldest residents. We were in hopes of an early Spring, after the snow being so continuous from November on.

We argued thus: the ground has been so heavily covered with snow that the frost would not penetrate to any great depth, and with the lengthening day, and the sun getting stronger, when March arrived, we would have a sudden quick thaw, and in a few days the ground would be in condition for putting in early crops, at least as early as the second week in March. The result has been that that month has been one of the most frosty we have experienced, and with very high biting winds has, several nights, taxed out heating equipment to its utmost. Several nights some panes of glass, loosened by the long Winter, have been blown out in some unexpected corner, and disappointment has followed over some cherished plants which have been either marred, or completely ruined, by the cutting frosty wind blowing through that part of the greenhouse thus exposed, through no fault of those in charge. In fact, it may have happened when they thought they could safely retire, after watching through the worst part of the night, knowing that the heater was well able to take care of things for the few hours that were left.

Timing of the flowering season of certain plants has also been disappointing to some of us, owing to lack of sunshine at a season when we generally counted on clear skies. As we look over our outdoor plants we find many things that discourage us. We gave our plants their usual covering for this section of the country, and the result has been that together with the great depth of snow, it was too much, causing rot in quite a number of our border plants. Others, owing to the ground not being frozen at all, started into growth under the snow, and these have been destroyed, the late cold blasting winds nipping them in their soft condition. Mice have also done considerable damage, and I am convinced from some little observations, that the grey squirrel is about as destructive at barking certain bushes and trees, as the mouse. Gardening, looking at it from the standpoint of a visitor, and beholding a floral display at its best, is a most wonderful occupation, but very few realize the brain racking care, and many disappointments that very often the gardener has been through, before such a restful, satisfying picture has been produced.

Late May and early June generally find the gardener in the thick of the fight to produce seasonable flowers, fruits, and vegetables, and if we lay hold of opportunity at the right moment, we shall have a fair measure of success. Ideals no one can rob us of. Our enemies may try to mar them, but to the heroic soul they are still there, and worth striving for.

Do not neglect staking peas at the earliest opportunity, and when they are an inch or two over grown, if they look too thick in the row, thin them out a little. Better quality will be the result. I question in our climate, if it would be wise to trust growing peas spaced as widely as they do in Europe. From photos I have seen, they certainly have wonderful yields, as the result of planting widely.

We always, with a sowing of peas, plant spinach

between the rows as it runs so quickly to seed, it is generally used up before it interferes with that crop. New Zealand spinach is not a *Spinacia* at all, botanically belonging to *Tetragonia*. This plant is used widely as substitute for *Spinacia* during the hot months, and does better if started in small pots as it is a tropical subject. It will grow from seed sown out doors, but will produce leaves much later from the plants started indoors. We sow three seeds to a pot and plant three feet apart. It very soon closes up between the hills at that distance.

Sow dwarf and pole Lima beans, after the middle of May. Put in plenty of seed and thin out after they are well up. This class of bean is liable to rot, if after they are sown it should turn wet and cold for several days. Plant pumpkin and squash about the middle of May and later. These, as regards their seeds, act about the same as Lima beans in unfavorable weather.

Soft coal soot is an excellent dust put around young vegetable plants. Insect pests are not at all happy, if a good dusting is kept around them while they are in a small state. However, remember and do not get it mixed with lime, as a powerful ammonia will be the result, and the tender foliage will be burned. A sprinkling of any good vegetable fertilizer after a crop is well up may be given between the rows before hoeing or watering, keep it well away from the plants, as many chemical fertilizers burn not only the leaves, but the stems of the plants as well. The best safeguard is a good watering after an application.

Tomatoes may be planted out towards the end of May, also egg plants, but don't forget that they are quite tender, and should be well hardened off. Without a doubt the best fruit is obtained from tomatoes, if they are trained over a trellis, or tied singly to a stake. Also rub out all side growths, training to a single stem.

Good melons can be grown outdoors if the weather is normal. Last year we had so much wet weather that we did not get a good set of fruit. If one has a decent house available they are more easily handled indoors.

The orchard requires a good deal of work nowadays, with so many fungous, and insect pests. Spraying or dusting has to be done several times to insure good fruit. The dealers have these preparations always in stock, and can be relied on as regards ingredients, if brought from a reputable firm. Dusting on the whole is considered by some more expensive than spraying, but it can be done much more quickly. Get busy as soon as the flower petals begin to fall from the trees, and look out for later hatchings of moths. A spraying with arsenate of lead will generally take care of the currant worm, on the smaller bushes, but dusting will do here also, if coloring of the foliage is an objection. Fruit of all kinds requires much attention to produce first-class specimens and good keeping quality.

In the flower garden from the middle of May onward there will be successions and changing scenes of color. The Darwin and May flowing tulips are among the most interesting, and when planted in clumps of ten or a dozen between the herbaceous plants, the green foliage, in its several shades, of these perennial plants, softens the brighter colors, and forms a pleasing combination. Without bulbs, the herbaceous borders in the Spring would give us a long period of very little flowering material, and would be of very little interest, except to plant experts, who are always enthusiastic when watching all stages of growth. Darwins, and other late flowering tu-

lips, last as a rule several years without any disturbance. However, as they flower, their general appearance should be noted, and if there are any signs of deterioration, the clump should be marked, and after the flowers begin to fade, lifted, and replaced next Fall with new bulbs.

Many flowering shrubs will be in their glory this month, and as soon as the flowers drop, one should look over the bushes, and remove as much of the old wood as will not interfere too much with the shape of the plant. Every chance should be given for any young growths to develop. Any plants that are standing out by themselves may have been allowed to ramble into growth forming old gnarled branches. The time arrives when they have to be dealt with and a severe cutting back is the only remedy. They may look a little bare for a season, but there is generally plenty of young wood near the centre which, when given a chance to develop, will soon take the place of what has been cut away. Dig around the plant at the same time, applying plenty of plant food suitable to it.

Rhododendrons have wintered very badly with us. The plantation here was about fifty years old, planted originally in peat with a little mixture of an upland loam, red in color. This loam, from my observation, seems ideal for shrub growing, especially for our native ones. The rhododendrons, I believe, were badly damaged in the ice storm in the Fall of 1921, as they were then flattened right out on the ground. Although they apparently recovered their shape and outline, now there are quite large pieces burned quite red, especially near the top of some of the plants, some of which were fifteen feet high. Give the damaged parts a chance, and if they show signs of breaking into growth lower down the stems, cut them back immediately above these young shoots, and they may in time fill in again. However, rhododendrons are never a sure thing near Boston.

The more hardy bedding plants may now be planted out about the middle of May. The tender sorts are better to be kept in the frames until the first week in June. Although one may not expect frost, yet coleus are affected by a raw wind when they are first set out, if the weather is inclined that way.

Look out for leaf rollers and other insect pests on the rose bushes. The dry dust composition is one of the most up-to-date remedies for many of these enemies of the rose, the leaves being more easily washed clean when roses are to be cut. And the rose bugs, well! they are yet with us, is about all that can be said, and the best remedy is, *catch them*.

Keep an eye on all plants in the flower garden that need staking. This is an art, and we have never yet seen a real good stake for this purpose, there are very few who can do this very necessary work, and preserve the natural shape of the plant.

A last sowing of annual asters (American branching) may be made the first week in June. These, if planted on good rich, new land, will give flowers very late. The early frosts do not seem to hurt them much, and we find that along with gladioli they are among the best of our late cut flowers.

Keep the hoe going whenever time permits. It is better than an application of fertilizer, if done often enough. A neat, well kept place depends a great deal on how well the walks and lawns are kept in fit condition. Mow the lawns twice a week, if one can afford the labor, and the walks should be edged and raked, at least once, in that space of time.

The greenhouses, in a way, need very watchful care at this season. Draughts are not easily avoided, owing to the prevalence of the east wind, which at this season,

is apt to spring up any minute in this section of the country. Spring potted plants of the hardwood nature need careful watering. The new compost may not yet be netted with roots from the old ball, and care should be exercised that that part of the root does not get quite dry, before the outer part, near the outside of the pot. All these details determines if your specimens are to make a nice even thrifty growth. Look the plants over several times this month, and any exceptionally strong shoot may be given another pinch. If this is not done, a few strong growths, allowed to grow at will, are very apt to spoil the shape and symmetry of the plant, besides weakening the other shoots.

Camellias are again growing freely; examine the drainage, making sure that water has a free outlet as a stagnant condition is certain death to them. It is not safe to use Hydrocyanic gas on the young growth, and other means must be employed to keep plants clean during the Summer. We use Barrie's soap sprayer, a most useful instrument, when filled with soap and attached to the faucet with a good nozzle on the end of the hose. We give them a thorough good syringing, when they need water. It not only keeps insects in check but it also loosens the black smut that is very likely to collect on the leaves of old plants. Feed the plants lightly if they have not been repotted. We find they respond to Clay's Fertilizer, weak cow manure water and Scotch soot, if not overdone.

If late shrubby calceolarias are wanted, pick off all the flower buds that are showing, and give them a cool shady position. Feed them liberally, until they show color quite prominently. By doing this, we have had fine plants in July, only they did not last as long in flower as earlier in the season.

About the end of May, Bouvardias for Fall flowering may be planted outdoors. However, much better results may be had, if one has a bench indoors for them. One can pinch them later than outdoors, timing them to come in after the chrysanthemums. If kept clean and fed well, after the bench is full of roots, better flowers than on the outdoor grown plants, will be produced.

We do not grow exhibition chrysanthemums and we never plan to have them rooted earlier than the first of June. We grow four plants to a seven inch pot, running them up by disbudding in the usual way for single stem flowers, until they are about four feet high, then we let all the buds and shoots develop naturally. These plants we use for cut sprays, and also as pot plants in very high windows, in which position they are very decorative. Rooted so late, if not overcrowded, the foliage is retained well down to the pot. Of course, as regards plant food, and other conditions of culture, we treat them as well as we know how, under our conditions. In the years now behind us, when growing exhibition plants, we always liked to have them in their final pots by the first of June. Single stems for the same purpose we potted at the same time. We have always contended that better flowers were grown in pots. However, a very fine grower whose son now stands high in our N. G. Association once told me, that he grew his blooms planted out on a shallow bench, and he said furthermore, that he himself planted them out of four inch pots on the fourth of July, when the boys were away having a good time. At any rate he produced the flowers, when the great day of competition arrived.

Boronia elatior flowers with us in a cool house, somewhat shaded during the last of May; the variety pinnata is the best if it can be obtained. Pimelea decussata flowers about the same time. I wish I knew where to get the variety spectabilis; as it is, in my opinion, the best hardwood plants are now sadly neglected. I do hope some one will make a hobby of them one of these days, as

there are so many gems which we often long to see. They are also very decorative and last well as cut flowers.

In the tropical house the principal thing from now on is to encourage an even, steady growth. If it is not possible to give the flowering section a house by itself during the Summer, the part of the house that it is possible to shade the least, should be used. I have seen bigger and better specimens than ever I have seen in the British Isles, and they were given a much more airy atmosphere to grow in, than was the rule there. As soon as the thermometer goes over 60 degrees outdoors, give them abundance of air. By doing so they dry out much more often, and may be given more plant food. A better and firmer growth will result, which is essential if they are to be used in decorative work. Of course, the floors, and between the plants on the benches, need damping down as the foliage section requires a moist atmosphere when making its growth. Gorgeous flowering display can be had during the Summer by growing such plants as Allamandas, Clerodendrons, Anthuriums, Dipladenias, Eucharis, Exoras, Pancratium, Franciscea, Medinilla, Stephanotis, Vinca rosea, etc. Insect pests of all kinds must be kept in check. Red spider is one of the worst, as if, perchance in some corner they get a foothold, a very short time of neglect will ruin the appearance of any plant. Syringing will not do the work, unless they are washed clean off the plant, but there are many contact insecticides that will, if applied thoroughly.

Cattleya Schroederae will now have passed out of flower: just before they have started their new growths, the condition of the compost they are potted in should be examined and any of it removed that may be loose on the surface, replacing it by fresh material. As from my observation of orchids, they are all benefited by a resurfacing once a year, provided one does not break the roots in the operation. Of course, any that are over the sides of the receptacle will need repotting. It is also beneficial to remove any of the pseudobulbs that have lost their leaves. Orchids of the Cattleya family are now so much cross-bred that they flower at all seasons, and potting is not now confined to certain seasons as it was thirty odd years ago. These crosses are like many other plants that have been crossbred, many of them are not the equals of good types of their parents. Over some slight change in markings and structure of the flower, an enthusiast gets a little worked up, but to many, they create little interest. The best thing in my opinion in cross bred orchids is the filling in of the gaps that used to be at certain seasons, so that a continuous supply of flowers may now be had the year round. I can be as enthusiastic as anyone when I see a real outstanding flower or spike, but there is a tendency in all such work to be freaky.

Dendrobiums need to be watched as the young growths in their early stages are easily lost, if climatic conditions are not quite right. A draughty chill with too much moisture will do it, as also will a hot stuffy, humid atmosphere. There is no question in my mind, but what all orchids in their growing season require plant food. The question is what, and the strength of the food given. The so called natural manures, when applied often and weak in quality, I have proved to my satisfaction to be beneficial. It may be given in the compost, or by evaporation. As to which is the better method, I have not yet decided convictions, having no time at present to experiment.

Grapes that have come along without any forcing are somewhat later with us this season. The varieties that are shy setters should not have their bunches thinned down too early. We find, if they are properly supplied with food, it does them no harm to let all but the weak small ones hang, until bunches with a fairly even set

are secured. We are not very particular about an equal space between each one on the rod, if they are anywhere near right. Good fruit is the main thing to have in view. The early house will be approaching the ripening stage, and requires plenty of fresh air to finish.

Pot fruit needs close watching to avoid dryness, and they also have to be fed more liberally than trees planted in a border. Avoid over cropping on forced peaches and Nectarines, saving the fruits that turn toward the light.

THE HERB GARDEN

IN most gardens the herbs which are in demand for culinary purposes are grown in a quarter of the kitchen garden, and this quarter is a very interesting and useful one; but a herb garden proper as an adjunct to the flower garden may be made a most delightful and attractive feature, and if a position can be chosen between the kitchen garden and flower garden it would be very appropriate.

There is a fascination about herbs, for they seem to carry us back to the time when gardening was first attempted seriously in this country, and it is not too much to say that from the old herb gardens have developed the beautiful gardens of flowers, shrubs, trees, and other ornamental plants of today. Herbs include some of the sweetest smelling plants of the garden, and for that reason alone they are worthy of being grown.

Any ordinary garden soil suits most herbs, although, naturally, the same soil will not suit all equally well; but with a little forethought in supplying individual requirements, quite a large collection of herbs may be made to flourish in one garden.

If the site is clear of large trees, the aspect is not a matter of great importance, but it is essential that plenty of sunshine and air should reach the plants, without which they would grow feebly and much fragrance would be lacking. The shelter of an existing wall or hedge is an advantage.

The size and shape of the garden must necessarily be governed by circumstances, and these will affect the scheme of design; but, whatever the size and shape, a good plan is to enclose open sides with hedges.

The Moss Rose, the Damask Rose, Sweet Briar and Rosemary are good subjects for this purpose, and quite in keeping with the scheme. Having defined the boundary, a narrow border may be retained on the perimeter, with a 2 ft. path inside it, thus dividing the garden into a continuous, encircling border with a central block. Transverse paths in each direction may be laid through the centre, and, if space permits, further paths in each direction at equal distances from the centre to the outside border, thus dividing the central part into sixteen beds.

The arrangement of the herbs may be left to individual taste, but each of the following subjects is worthy of a single bed: Spearmint, Peppermint, Catmint, Woolly Mint, Alecost, Balm, Horehound, Marjoram, Sage, Common Thyme, Lemon Thyme, Lavender, Hyssop, Summer Savory, Winter Savory, Tarragon. For the borders, such dwarf-growing subjects as Chives, Fumitory, Pennyroyal, Prunella, Saffron, Woodruff, Parsley and Chervil might be planted as an edge, with groups of Alkanet, Angelica, Anise, Basil, Borage, Burnet, Camomile, Caraway, Coriander, Cotton Lavender, Dill, Elecampane, Fennel, Mallow, Marigold, Purslane, Rue, Southernwood, Sweet Cicely, Valerian and Wormwood.

Many of these plants are annuals or biennials, and may easily be raised from seeds. The perennials may be increased by division or cuttings. It is best to divide the plants in the early Autumn; but strong plants from cuttings may be set out at any time when the weather is favorable.—*The Gardeners' Chronicle* (British).

What Is a Plant?

WILLARD N. CLUTE

IT is a good deal easier to define a plant in general terms than it is to get down to particulars. It is, of course, recognized by everybody that plants form one of the two great divisions of living things and that animals form the other, but the difficulty occurs when one begins to lay down rules that will absolutely distinguish one from the other. Anybody can tell a cow from a cabbage but nobody feels very confident that he can always distinguish between the animal and the plant when both are formed of a single cell. Even the text-books are not always clear in such matters and both zoology and botany have often claimed the same organism for their own. The difficulty of exactly defining a plant is complicated by the behavior of the fungi and other parasitic plants which, in their methods of assimilation, at least, are more like animals than plants.

In one of our scientific journals, botanists have recently been amusing themselves in trying to make a definition that will fit all cases but without any very great success. The dictionary definitions are unsatisfactory in that they all include too much or too little. The statement that a plant is "an organized non-sentient being endowed with vegetable as distinguished from animal life" means nothing unless one also has a definition of what "vegetable life" is. Another dictionary definition says that a plant is "a vegetable product nourished by gases and liquids and not ingesting solid particles of food." This is also faulty, for as far as use is concerned, plants also make use of solid particles, digesting them just as animals do, and later oxidizing them by a process that is practically identical with that of animals.

A substitute suggested by one writer is that a plant "is an organism possessing chlorophyll or descended from chlorophyll possessing ancestors." Another is that a plant is "a living thing which manufactures its food from the raw materials of earth and air, or one whose ancestors did so." Were it not for the fungi and other colorless plants, one might at least distinguish the plants from the animals by the statement that "plants are living organisms that unite various lifeless substances by the energy from sunlight while animals incapable of doing this, secure their energy by tearing down what the plants build up."

Any of these definitions will answer for ordinary cases and we may let the technical botanist argue about the exceptions. There is, however, another phase of the subject which offers perhaps still greater opportunities for discussion. Assuming that we can always distinguish a plant from other living things we are still confronted by the problem of how much of a vegetable complex is a plant. The question is not so difficult in the case of annual plants for one sows a seed and from it there comes up a form that grows to maturity, reproduces, declines to old age and finally dies. This, indeed, is a plant. When it dies, it may leave behind it a million descendants each, in time, duplicating the life cycle of its parents and each capable of being distinguished from its fellows. But what about the case when one plants the seed of the wild plum or the white poplar? After a time we have not a single distinct organism but a tangle of forms produced from root-sprouts. Is this all one plant, or a group of plants? The banyan reverses this process and produces roots from the branches and gradually spreads over enough territory to shelter an army. We speak of it as a banyan tree, but it is not a tree in the sense that a pine tree is a tree.

In the strawberry, we find certain branches that are

manifestly for the purpose of producing new plants and the same is true of the "hen-and-chickens" and the strawberry geranium, which is neither a geranium nor a strawberry. These new plants, however, are not quite in the same category as those produced from seeds, for they are still attached to the mother plant. The mangrove has devised an improvement on this method. Its fruits do not separate from the parent plant when ripe but continue on until the plantlets they contain have grown to a considerable size. Then they fall from the tree ready to start in life for themselves.

Among the lilies and "top onions" we find bulbs and bulblets that drop off and produce new plants as distinct as their parents, and we have no difficulty in distinguishing between the separate individuals, but there are other lilyworts whose methods of reproduction leave us in more uncertainty. The adder's-tongue or dog-tooth violet, for instance, begins as a seedling and forms a bulb at the end of its first year. The next year, however, this bulb may send out one or more slender subterranean stems called "droppers," which wander about in the earth and finally produce new bulbs at their tips. At the end of the second season the original bulb has disappeared but there are several new bulbs scattered through the soil. Are these separate plants, or a widely distributed single plant?

There is a long list of plants such as irises, blood-root, and Solomon's-seals whose subterranean stems branch and branch again, forming a clump of considerable size. How much of this clump shall we call a single plant? Commonly, such forms spread out from the center in all directions, forming a circle which is commonly known as a "fairy ring." Such fairy rings were first known in the fungi and named because it was supposed that the fairies danced in them of moonlight nights, but now many other plants are known which form similar figures. When the old branches decay and disappear the branch-tips are left as separate individuals. Thus time alone may make several plants out of one!

When man takes to multiplying plants he adds to the confusion by making separate plants from pieces of another. When he finds a form of value he may multiply it excessively in this way. All the Concord grapes, for instance, are but parts of one original vine. In a certain sense there is only one Concord grape vine in America; in another there are millions. The same is true of the Navel orange, the Delicious apple and a host of others.

Most puzzling of all are the lichens, which may be described as the only living things in the world which are entirely vegetable without being plants. Although they have a definite shape, color, size and place of growth, and are comparable to plants in these respects, they are in reality plant partnerships in which an alga and a lichen are combined. For a long time they were regarded as true plants and classed accordingly, but now they have no standing as separate species. Whether they should be classed as fungi or alga does not concern us at present; the interest in them lies in the complications they introduce into the definition of what a plant really is.

All nature is but art, unknown to thee;
All chance, direction, which thou canst not see;
All discord, harmony, not understood;
All partial evil, universal good;
And spite of pride, in erring reason's spite,
One truth is clear, whatever is, is right.—*Pope*.

Some Hardy Geraniums In An Old World Garden

ARTHUR T. JOHNSON, F.R.H.S.

IN dealing with a genus so rich in species and varieties as that to which the Geraniums, or Cranesbills belong, one has of necessity to omit many worthy kinds. But those which I refer to below comprise a list of species which in this country at any rate have proved their merit under a wide variety of conditions. They are the "pick of the basket" in so far as color and form are concerned



Geranium ibericum

and are perfectly hardy, easy-tempered and reliable plants.

Perhaps the most gorgeous of these hardy Geraniums is *G. arvense* (*G. psilostemon* of Knuth), an herbaceous species which will go up to three feet in height and cover a dozen square feet with its noble foliage and heavy clusters of flowers. The tint of magenta which creeps into the brilliant crimson of these splendid blossoms may be counted an undesirable feature by some, but to my mind the jet black of the eye and veining of the velvety flowers is just sufficient to counteract any harshness that there may be in their sumptuous color. This is a plant to grow at the edge of the shrubbery, or woodland, or as a specimen on the lawn where, backed by an amplitude of green, it will be enjoyed to the fullest advantage.

In some respects *G. anemonæfolium* is a more refined species than the above. Though it has been in cultivation for many years it is still uncommon, possibly because it, being a native of Madeira, is not as hardy as most of its kindred. It has the habit of leafing during the Winter and Spring months which renders it liable to be cut by frost. Nevertheless, I am constrained to include *G. anemonæfolium* here since it has withstood 20 degrees of frost with the protection of a little dry fern and because it is generally such an easy doer in most soils. The broad and fleshy leaves of this species rise on stiff, straight stems from a short, woody stock to the height of some two feet. They are deeply cut and a rich, glossy green, and clear above them in the early Summer appear the flowering stems. These also are peculiarly rigid and, like those of the leaves, covered with iridescent hairs. The flowers that are borne in pairs at the many-branched ends of these stems are of an exquisite satiny rose-pink, the central eye and conspicuous stamens being a vivid blood crimson. This fine Geranium will maintain a succession of blossom throughout the Summer.

Here it sets seed freely, the seedlings are easily raised and invariably come true. A moderately cool position with shelter from the midday sun is most suitable for *G. anemonæfolium* and the choicest place in the garden is not too good for a plant of such undeniable merit. It should hardly be necessary to add that this noble plant must not be confused with *G. Lowii*, an error into which even the Kew Hand List once fell. The latter is a biennial, whereas the Madeiran plant is a true perennial. *G. Lowii* is, moreover, more like an overgrown Herb Robert than anything else and wholly unlike *anemonæfolium* in every way.

Another member of the genus which likes shade—cooler conditions, indeed, than any other—is *G. wall-chianum*. This is a trailer which will cover nearly a square yard with its red-hued stems and grey-green leaves and bears an abundance of broad, saucer-shaped flowers from July to November. In the old type these blooms are a low-toned purple, but a much better, exceedingly beautiful form and one that is now entirely superseding the former is that known as Buxton's Variety in which the flowers are a lovely Nemophila blue with a large central zone of pure white. This species is quite hardy anywhere in this country and one that dies back to the base in the Fall.

Our native *G. sanguineum* which makes a rounded mass of tangled stems and deeply-cut leaves about ten inches high, bearing large flowers in a bold crimson, must always be included among the best of the hardy Geraniums. This is one of the easiest to manage, it is fond of lime and a warm sunny spot in poor soil. Of the many varieties of this species *G. nepalense* may be described as a magnified edition of the type (though its name actually belongs to another) and then there is the very charming pure white one which is so much larger in all its parts than *G. sanguineum* itself that some class it as a sub-species. Nor can one omit the dainty little *G. s. var. lancastriense*, which has a dense, prostrate habit and pretty salmon-rose blossoms—a gem for the rock-garden and as easy-tempered as it is pretty.

G. nodosum, again, bears some resemblance to the last-named in habit, making a mat of finely-cut, greyish green foliage which it adorns with flowers of a cheerful crimson. Like *sanguineum* this species seeds freely about our dry, hot banks and, not content with that, the two intermarry without restraint and people the garden with their hybrid offspring in every conceivable shade between a low-toned purple and a blazing crimson. Another couple which insist on hybridising, and which are even more successful colonists, are *G. endressi* and *striatum*. The former bears flowers of a strong pink, resembling the color of a raspberry ice, and those of the latter are scribbled with a network of fine rose and white veinings. Between them, these manage to raise an innumerable family of youngsters which, in the interests of domestic peace, bear an equal resemblance to each parent.

G. grandiflorum has perhaps the largest flowers of all its kind, an excellent species of about one foot high, spreading slowly by root-stems, and bearing throughout the Summer big, nodding cups of an intense ultramarine blue. Somewhat taller and more compact in habit is the fine old silky-leaved *G. ibericum* with its bunches of large blue-purple blossoms and gorgeous autumnal leaf color. *G. platypetalum*, once considered a form of the

(Continued on page 123)

Interesting Spring-Flowering Bulbous Plants

IT is astonishing what a wealth of garden beauty is practically unknown to the great majority of garden owners. Granted that a very large proportion of plant-lovers have very small—too small—gardens, it is none the less remarkable that there is such a comparative scarcity of many interesting species and even genera in private places. This is as true of spring-flowering bulbous plants as of any section of hardy plants. Daffodils, florists' Tulips, Hyacinths and Dutch Crocuses are to be found in practically every garden, but when we come to the very beautiful and interesting little Daffodils of the Hoop-Petticoat, Angels' Tears and cyclamineus sections, to mention but three, in how many gardens can we find them?

How often does one see even the commonest of the species Tulips growing, or species Crocuses for that matter? All the Fritillarias and Erythroniums are really uncommon. There must be many thousands of gardens of some size in which even our beautiful native Snakeshead, *Fritillaria Meleagris*, is wanting, and the same may be said even of the common Dog's Tooth Violet, *Erythronium Denscanis*. The glorious sky blue *Muscari Heavenly Blue* is still a catalogue name to many, and even the old Grape Hyacinth, *Muscari botryoides*, which was fairly common in Victorian days, is now almost a rarity.

Of the small *Narcissi*, none is more interesting than the forms of the Hoop Petticoat *Narcissus*, *N. Bulbocodium*.

Besides the *Bulbocodiums* and the Angels' Tears, there are such tiny and beautiful species as *N. minimus*, a perfect little trumpet Daffodil which scarcely exceeds three inches in height. This little charmer does admirably in the heath garden, or, in peaty soil, it will flourish on a rocky bank. *N. nanus* is a giant by comparison with the last, yet it scarcely ever grows taller than six inches. The blossoms are a deep golden yellow, and it is very effective among short grass on banks or mounds.

Of Tulip species none is easier or more beautiful than *T. Kaufmanniana*, an April-flowering kind of very variable coloring, but, as generally sold, soft creamy yellow tinged on the exterior with pink. *T. Greigi*, also April-flowering, is also fairly easy, though it seldom increases to any extent. This is a large-flowered species with brilliant vermilion blossoms; the leaves are handsomely blotched with purplish brown.

The wild species which is the parent of the May-flowering Darwin Tulips, *T. Gesneriana*, is admirable. It is, as might be expected, a tall grower, and the brilliant crimson-scarlet blossoms, each with a conspicuous black zone at the base, are sweet scented. *T. dasystemon* is a pretty little species very distinct from any of the florists' Tulips in that it habitually bears several flowers on a stem; strong bulbs will produce as many as seven. The blossoms, in their garb of yellow edged with white, remind one of that brilliant Californian annual, *Limnanthes Douglasii*. *T. persica* also bears two or more blossoms on each stem. This is a dwarf species, and the bright yellow flowers, which are bronzed externally, are fragrant. It is best, therefore, in the rock garden and not too far from the eye. *Tulipa sylvestris* is a native of Britain and worth growing for its fragrance alone. In color it is pale yellow, touched at the edges with red. There are a great number of other Tulip species, but these should suffice for the beginner to try.

When we come to the *Crocus* species, considerable selection is necessary, for an article could easily be written upon this topic alone. *Crocus Sieberi* is a Grecian species of bright lilac coloring in the typical form, with orange

at the base; but the natural variety, *versicolor*, has a wider range of coloring—white, purple and lilac being mottled and striped above the orange base. *Crocus Imperati* is one of the largest of the species Crocuses, yet, if size be a desideratum, it falls short of the Giant Dutch sorts. There is a beautiful clear rose form and also a pure white. This is quite one of the best of the very early-flowering species. *Crocus Tommasinianus* is one of the most beautiful and useful. It flowers just before *C. vernus* and the Dutch varieties raised from that species. There are numbers of other spring-flowering species and several good autumn-flowering ones, all easy to grow and beautiful. Of these latter, probably, *C. speciosus*, of rich bluish purple hue with a touch of gallant orange provided by the stigmata, is the best.

Fritillaria Meleagris, the Snakeshead, still to be found wild in some English meadows, is equally easy in turf-land or in garden soil. It does not like too hot a situation, but will grow and increase on banks facing east or west, and does not disdain the light shade of deciduous trees. It will flourish on light sandy soils, but probably prefers a moderately greasy loam. When the quaintly speckled bells reach a height of two feet or more, as they will easily do when happy, this is a most effective plant. It is also excellent for cut flowers. There are now quite a number of named varieties, but those who have never grown the Snakeshead would be well advised to try the typical plant and its even commoner white (or whitish) variety first. Afterwards, stock can be rapidly increased from the seeds which are produced in such abundance. Of the other Fritillarias we may neglect the Crown Imperials (*F. Imperialis*), since everyone knows them, though, strangely enough, they are little grown nowadays.

Comparatively few gardeners have any conception of the beauty of the better Erythroniums when naturalized, for in suitable soils and situations naturalize themselves they all will. Perhaps *E. revolutum* is the most useful species. Some of the forms of this are magnificent and easy to grow. White Beauty has self-colored flowers of a delightful buttery-cream tone with all the finish we expect in the lily family. The blossoms are not seldom three inches across and when established the flower stems are often more than a foot in height. No one who has only seen this plant as a pigmy specimen in a small pot at a Royal Horticultural Society's meeting can form any conception of its beauty in the garden. This, indeed, applies to all the American species and varieties. Other good forms of *E. revolutum* are *Johnsoni*, clear pink, and *Watsoni*, cream color with a rosy zone. *E. Pink Beauty* is a fine rosy pink sort which makes an excellent companion to White Beauty, but is obviously not very closely related. *E. americanum* is a pretty clear yellow species with red spots, but not free to flower. The soft orange and yellow *E. Howelli*, rather a rare plant at present, is more floriferous. *The Garden*.

The whole life of man is but a point of time; let us enjoy it, therefore while it lasts, and not spend it to no purpose. *Plutarch*.

A CORRECTION

In the April issue, the illustration of *Brasso-Cattleya*, *Ilene*, was inadvertently placed up side down, after it had slipped from the forms when ready for press. The error was not discovered till the pages were printed.

Stimulating Plant Growth With Carbon Dioxide

DR. E. BADE

THE introduction of carbon dioxide gas to plants inclosed in glass vessels to stimulate growth is quite old, but no success was ever derived from such a process, the plant invariably becoming abnormal. Such experiments have been carried out since the 18th century when Lavoisier discovered that the process of respiration in plants was analogous to the process of combustion and when Ingenhouss proved that plants could revivify the most stagnant air in a few hours of sunlight.

More recent investigations have conclusively proven that plants breathe just like animals, that is, they take up oxygen and give off carbon dioxide. This process, which takes place both day and night, is most noticeable at the latter period. In the day time, while manufacturing starch in the leaves with carbon dioxide, taken in as a gas through tiny leaf openings, the stomata, and water, taken up through the roots, oxygen is given off as a waste or by-product, but normal respiration still takes place in spite of this fact although the gas taken up in breathing is nowhere nearly as much in quantity as that which is

plants not only growing faster, but more luxuriantly as well. This process is essentially nothing more than feeding the plant through the leaf by providing the raw materials necessary for the manufacture of its structure, a process of "fertilization" comparatively inexpensive, and distinctly new.

In the experimental plant of the "Riedel Fertilizing Process Company" of Elizabeth, N. J., this process has



Colerus gassed. Not gassed

been tested for its practical value. Two exactly similar greenhouses of the usual type were built, but one was provided for the distribution of carbon dioxide gas, the other was used as a control house. The results obtained are exceptional. The gassed plants are thick, more massive, robust, vigorous, and healthy in every way, while the same plants in the control house which were not pro-

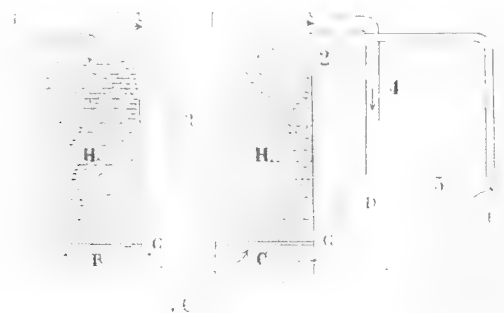


Diagram showing distribution of carbon dioxide

given off. This significant fact was only too seldom taken into consideration in former times while conducting gas experiments with plants, it being the source of the greatest errors.

Today it has been established that starch is manufactured with the aid of chlorophyll, the green coloring matter of the leaves which act like a catalyst.

1— H_2O (water) + CO_2 (carbon dioxide) = H_2CO_3 (Carbonic acid).

2— $2\text{H}_2\text{CO}_3 = 2\text{CH}_2\text{O}_2$ (formic acid) + O_2 (oxygen).

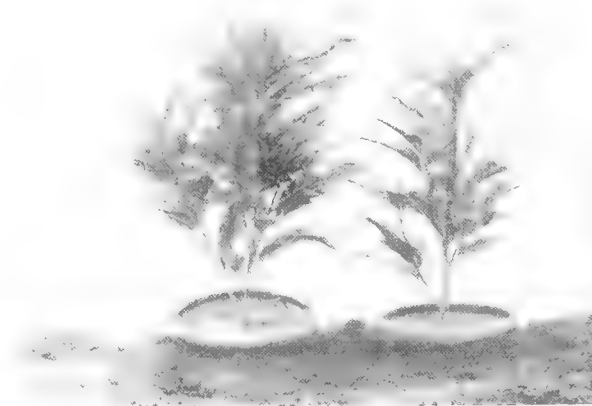
3— $2\text{CH}_2\text{O}_2 = 2\text{CH}_2\text{O}$ (formaldehyde) + O_2 .

4— $6\text{CH}_2\text{O} = \text{C}_6\text{H}_{12}\text{O}_6$ (grape sugar).

5— $\text{C}_6\text{H}_{12}\text{O}_6 = \text{C}_6\text{H}_{10}\text{O}_5$ (starch) + H_2O (water).

The water and the carbon dioxide come together in the leaf, and, under the influence of chlorophyll, carbonic acid is produced. But this reaction only occurs under the chemical influence of light rays, it does not take place at night. From the carbonic acid, formic acid is produced, which in turn is changed into formaldehyde. Each of these last two reactions produce a by-product which escapes through the stomata, it is oxygen gas. Six molecules of the formaldehyde are condensed whereby grape fruit sugar is formed. This, by a process of polymerization, is changed to starch, water being extracted by this transformation.

Slightly increasing the quantity of carbon dioxide available for plant food, has given remarkable results. The subjection of growing plants to doses of this gas at



Croton gassed. Not gassed

vided with artificial gas-nourishment, are small, more or less straggly when compared to the others, develop fewer leaves, and their root system is longer, less compact and dense.

The gas is produced by the furnace used to heat the greenhouse. When the house is to be gassed, which is only necessary at intervals, the short length of pipe leading to the flue, is closed, and the gas led through pipe A to the first scrubber. Two of these stand just outside of the house. The gas, which enters at the bottom, passes over coke H placed upon a grate G. From pipe 1 a fine spray of water is passed over the coke, the waste water

(Continued on page 124)

JELLY FROM WILD FRUITS

IN nearly every community there go to waste each year quantities of wild fruit suitable for jelly making, that might be had for the asking. Wild apples, wild plums, wild cherries, Japanese quinces, hawthorns, wild grapes, cornelian cherries, barberries, and elderberries all make good jelly. Some of these can be used alone, while some are best when combined with other fruits. A mixture of wild apples and hawthorns, with a sprinkling of wild grapes, wild plums and elderberries gives a beautiful rose-purple jelly of excellent flavor.

The cultivated apple has been naturalized in many parts of the country, particularly in New England and New York, where it is commonly found along roadsides and country lanes. Landowners will usually give permission to pick the fruit, and though usually gnarled and sour, it makes excellent jelly. *Pyrus ioensis* and *Pyrus coronaria*, our native American apples, are common around St. Louis. Their small, yellow fruit is sour and somewhat astringent, yet it makes delicious jelly, particularly when used in combination with the large-fruited hawthorns.

The common elderberry, *Sambucus canadensis*, with its broad panicles of white flowers followed by deep purple fruit, is a familiar sight in eastern North America, and the fruit is commonly used in small quantities for wine and pie making. Combined with wild plums and wild apples it makes delicious jelly, while the addition of a few heads of elderberries will give crabapple jelly a beautiful rose-purple color without appreciably changing the flavor.

Most of the native plums make good jam and jelly. Several of the better forms have been introduced into cultivation and are the more valuable since they will succeed in regions where no other fruit will grow. The common barberry, now outlawed in the West because of its relation to the wheat rust, is still cultivated in many parts of the country and has run wild in the East. In combination with other fruits it gives a good color and flavor to jellies, and when used alone it produces a clear red jelly quite like that made from red currants.

The several species of wild grapes native to North America are excellent for jelly making, some of them being superior to the cultivated one in this respect. Though they are not as often neglected as many of the other wild fruits, large quantities go to waste every year, even in thickly settled regions. Good grape juice can be made from the juicier kinds, but it is apt to have a "stemmy" taste and seldom equals that made from the cultivated varieties. Fence-rows, riverbanks, and the edges of wood lots are likely places to find the vines.

Many different species of hawthorns are found in Missouri, and in late years some of the more handsome forms have been planted for the beauty of their white flowers and red fruit. The fruit varies in size in the different species from smaller than a pea to that of small plums. Those with bright red, medium-sized, sub-acid fruit (*Crataegus mollis* and allied species) are the best for jelly. In cooking they lose the unpleasant flat taste so characteristic of hawthorns and the jelly is much like that of crab-apples.

Each year the common rum cherry (*Prunus serotina*) produces large quantities of red-purple fruit which is seldom used, although in combination with wild apples it makes a delicious dark red jelly, semi-opaque, resembling plum jelly in consistency and flavor.

None of these fruits require any special treatment. After a thorough washing they should be covered with water, the juicier fruits requiring less water, and boiled until soft. The juice is then strained through a jelly bag, and if the resulting pomace has not lost all its flavor more water may be added and the process repeated. (Crabapples can be cooked up in this way four or five times, though the

later boilings sometimes produce a cloudy jelly.) The juice should be measured, and an equal weight of sugar added after the juice has boiled from ten to fifteen minutes. Tests should be frequently made for jelling by trying a small amount on a cold plate or by noticing the way in which it drips off a spoon.—*Missouri Botanical Garden Bulletin*.

RHODODENDRONS THRIVE IN SOIL TREATED WITH ALUMINUM SULPHATE

A METHOD for making the ordinary garden soil suitable for rhododendrons has been discovered by Dr. Frederick V. Coville, botanist of the United States Department of Agriculture, which although still in the experimental stage, will be welcomed by nurserymen and others interested in growing ornamental shrubbery.

Native rhododendrons unlike most plants and crops require an acid soil and will not thrive in the ordinary fertile garden or greenhouse soil, but they grow with great luxuriance in sand mixed with peat, with rotting wood, or with half-rotted leaves. Experiments have made it clear that rhododendrons thrive in this kind of soil because its chemical reaction is acid, and they die in the ordinary fertile soil because its reaction is neutral or alkaline.

Dr. Coville's experimental work which has been done in the greenhouse has shown that aluminum sulphate when applied to an ordinary soil is an effective and inexpensive method of changing the soil reaction from neutral or alkaline to acid. Where soils have been so treated the stimulation of growth of the rhododendrons has been very great, as much as 250 per cent increase in the diameter of the rosettes of seedling rhododendrons having been secured. Crude aluminum sulphate is used in the chemical industries, is not expensive, and in large quantities can be purchased from dealers in chemical supplies at about \$5 per hundred pounds.

Experiments that have been in progress for several years past have shown that soil acidity is required not only for rhododendrons but the azaleas, kalmias, and practically all the plants of the heath family, besides many orchids and numerous other plants of ornamental horticulture that are commonly regarded as difficult of cultivation. There is every reason to expect, said Dr. Coville, that these other plants also can be made to thrive in ordinary soils through the use of aluminum sulphate.

Experimental work in this matter has not been carried on for sufficient length of time to be certain that long continued treatment with aluminum sulphate may not lead to the development of unforeseen difficulties, such as the formation of hydrogen sulphide or other compounds of sulphur injurious to this type of plants. For the present the aluminum sulphate treatment should be regarded as experimental.

Large rhododendrons growing in the deeper soils of outdoor plantings were not tested in these experiments, but for such situations, it is believed, amounts of aluminum sulphate up to half a pound per square yard may be applied advantageously and safely, if the soil is of the ordinary fertile type, the application being repeated if the soil is not made acid by the first application.

In an ideal rhododendron soil aluminum sulphate is unnecessary and useless. Persons desiring to experiment with sickly outdoor rhododendrons are advised to apply the aluminum sulphate to only a portion of the plantings, always leaving another portion untreated for comparison.

National Nurseryman.

Accuse not Nature; she hath done her part;
Do thou but thrive. *Milton.*

Hardy Cyripedium

RICHARD ROTHE

CONSIDERED the showiest of the orchids inhabiting the temperate zones, the species of hardy cyripediums indigenous to our country rank among the most beautiful we know of, but so far we rarely meet them in our gardens. The reason for our frequent failures in attempts to establish and cultivate plantations of our Lady's Slippers or Moccasin flowers, is that we do not, or sometimes cannot, provide the same conditions for their thriving as Nature does. They prefer semi-shady positions and like moisture, but neither stagnant nor excessive moisture. We shall always find them on well-drained ground, their long roots reaching out far, in depth seldom lower than four inches below the surface of a comparatively shallow layer of light leafy or peaty soil, of more or less sandy nature. They inhabit mostly the wooded regions, both in mountainous and lowland sections, and there we may find them from the Middle

to descriptive list given in the new edition of Tarouca and C. Schneider's Standard Work on "Hardy Perennials."

Cypripedium calceolus, native of Central Europe; color reddish brown and yellow. *Cypripedium cordigerum*, hailing from China, Manchuria and the Himalaya; flowers greenish white. *C. macranthum*, a native of Siberia, color of large blossoms deep reddish and pink purple. *C. tibeticum*, northern China, flowers light brown. *C. guttatum*, Russia, northern Asia, rhizomatous, small flowering, white with carmine. *C. ventricosum*, Manchuria and Siberia, color varying from white to bright reddish purple.

Recent new introduction from western China: *C. luteum* in habit of growth resembling *spectabile* but producing light sulphur yellow flowers and *C. margaritaceum* in habit of growth similar to *acaule*.

SOME HARDY GERANIUMS

(Continued from page 119)

above is of the same style, but with a more beautiful foliage and even more magnificent flowers, which share with those of *ibericum* one failing—a short period of blossoming. Still taller, ascending in some kinds to three or four feet, is the old *G. pratense* of our cottage gardens which, in one or two varieties, can still hold its own against the inrush of novelties. Personally, I like the single white and the single blue, especially for the semi-wild garden, and then there is an old variety, now rather rare, which has large double flowers in a very delicate silvery smoke-blue, a plant of surpassing beauty for a cool, half-shady spot.

G. atlanticum also claims notice here. A native, not of the Atlantic Ocean, but of the Atlas Mountains, this species is distinct in more than one particular. It produces a luscious crop of six-inch leafage, like that of some Wood Anemone, above which in May or June stand the erect stems of violet flowers. Then towards the Summer's end the stemless foliage dies away only to re-appear refreshed with the rains of October. Another species of special merit for the rock-garden is *G. Traversii*, which proves hardy though a New Zealander, and one which is at once recognized by its somewhat large, bluntly-lobed leaves, which shimmer with a silvery sheen. There is a white form of *G. Traversii*, also some with flowers of a washy blush, none of which can compare with the variety sometimes listed as *var. elegans* in which the blooms, which open flat, are nearly two inches across and of a most refined and exquisite shell-pink.

From the last-mentioned one might easily be persuaded to enter those entrancing pastures in which dwell the many silvery-leaved little treasures of the rock-garden. But, even if space did not forbid, the pitfalls of classification might bring one to confusion amid the shoals of *Erodium*. So I must content myself with a mention of the new *G. "Russel Prichard,"* which suggests a blend of *sanguineum* and *traversii* in its blood-red flowers and silvery foliage, and wind up with a regret that the many good American species of this genus are still so uncommon in English gardens. *G. Fremonti* and *cæspitosum*, *Richardsonii* and *sessiliflorum* we have, but even these are anything but well known.

The heart that is soonest awake to the flowers is always the first to be touch'd by the thorns.—*Moore*.



Cypripedium acaule

Atlantic States, as far north as Canada. Successful domesticating of our wild growing cyripediums, however, is far easier in New England and northern boundary States than in gardens south of New York.

On account of frequency and wide distribution, *cypripedium acaule* is perhaps our best known native species. It bears its flowers on straight stems, one foot above its two ground leaves, and we may see it in bloom from May until the end of June, according to latitude. Our photograph was taken during the latter part of June in the small sample rockery I built for the nursery at Northeast Harbor, Maine, about fifteen years ago. Within the exceptionally favorable northern sea-coast climate the color of the flowers varied from white to a deep rosy purple. *Cypripedium parviflorum* and *pubescens* resemble each other very closely, the only means of distinction being the size of their yellow flowers. Those of *pubescens* are noticeably larger than the ones produced by *parviflorum*.

Cypripedium spectabile, recently re-named, and described as *Cypripedium reginae*, is the stateliest and most beautiful representative of all known hardy Moccasin flowers. Its leafy stalks, nearly two feet high, bear the large rosy purple shaded flowers well above the foliage. This species is wonderfully effective in bog gardens when massed together in clumps of from a dozen to twenty-five plants.

Of the foreign hardy Lady's Slippers, meriting the attention of American garden lovers, I quote, according

FLOWERING EVERGREEN SHRUBS

THERE is no need to point out to a practical gardener the importance of evergreens in the garden scheme. There is, indeed, a regrettable tendency in some quarters to use them in unsuitable places. There was a time—not so very long ago—when it was considered proper to clothe the table legs. This attitude we very properly deride, yet, even today, one often sees the butts of fine forest trees obscured by meaningless evergreen planting. Such planting effectively destroys the balance and grace which, with the appearance of strength and solidity, constitute the charm of a well grown tree.

The value of evergreen shrubs admitted, there seems no reason why a much greater proportion of those used should not be flowering shrubs than is at present the case. There are very few positions where the fact that a shrub at some period of the year bears attractive flowers (or handsome fruits) is a disadvantage.

Yew and Holly, each in its particular way, are, of course, admirable hedge plants. They also have decorative values as trees. Laurel has none of these advantages. It is an unsatisfactory permanent hedge and, as usually seen, cumber ground which might be occupied by more beautiful as well as more interesting shrubs.

If a substitute be sought with something of the same leaf character, there is a multitude of hybrid Rhododendrons to choose from, to say nothing of the ever-swelling legion of large-leaved species. The so-called American Wood-Laurel, *Kalmia latifolia*, is also charming when in flower and valuable as flowering when the bulk of Rhododendrons are over, though the Rhododendron season, with new introductions, grows steadily longer. On soils with an appreciable lime content these Rhododendrons will not grow, but large-leaved flowering evergreens are still to be found. We have the so-called Strawberry Trees, for example, *Arbutus Unedo* and its varieties, *A. Andrachne* and the hybrid between the two species, *A. hybrida*, none of which objects to lime. *Cistus laurifolius* is also worthy of mention, since it forms a good solid background when out of flower though, of course, its leaves resemble the Laurel only in shape—not in size. It is a most attractive shrub when in flower.

The same may be said of the large-leaved Escallonias which, on well drained soils, are much more handy than many people suppose. The two hardiest large-leaved species are *E. macrantha* and *rubra*. Of these two *E. rubra* is usually considered the hardier, but, in the writer's opinion, this is exceedingly doubtful. *E. punctata* is handsomer than *E. rubra*, but scarcely so hardy, yet it is an invaluable species for the southern edge of woodland, or for sheltered sites generally, in any of the coldest districts.

Then we have the broad-leaved Berberies which to most of us are still "Mahonia." There is the old favorite Oregon Grape itself, *Mahonia aquifolium*, invaluable for underplanting. Then there is *Berberis japonica* and its several varieties (including the one generally listed as *B. Bealei*), *B. nepalensis* and *B. nervosa*.

There are several useful evergreen Cotoneasters which, if of small value as flowering shrubs, are admirable when in fruit. These include *C. Francheti*, *pannosa*, *buxifolia*, *salicifolia* (and varieties), and *turbinata*. Of prostrate sorts *C. microphylla* and *Dammeri* are reliable and beautiful fruiting shrubs. All the *Pyracanthas* are also delightful fruiting evergreens.

Of evergreen Ceanothuses the only one likely to succeed in the open inland without considerable protection is *Ceanothus thyrsiflorus*, the so-called California Lilac, which in time reaches the stature of a small tree. The flower trusses, which are of fair size, are pale blue. The variety *griseus* is almost as hardy. It has much larger foliage, is a quicker grower and the blossoms are pale

lilac. Moderately hardy, too, is *C. Lobbianus*, now considered to be a natural hybrid between *C. thyrsiflorus* and *C. dentatus*. This is a bright blue-flowered kind, often seen in gardens as *C. dentatus*. This muddled nomenclature leads to much confusion as to the hardiness of various families of plants which are not, in general, entirely hardy.

The Mexican Orange, *Choisya ternata*, is unquestionably far hardier than most people consider it. Given shelter from wind-frost it will withstand very low temperatures unharmed. Its beauty none will deny. The *Raphiolepis* has the same highly glazed foliage as the *Choisya*, but in general appearance these shrubs remind one more of the Escallonias than anything else. The two hardiest species are *R. japonica* and *Delacouri*, the former with white and the latter with pink flowers.

That beautiful and fragrant relative of the Mock Orange, *Carpentaria californica*, requires a wall in most districts, though it makes a beautiful shrub in the open on our western seaboard. It flowers about mid-Summer, a time when shrub-flowers are welcome. The same way, with equal truth, be said of *Garrya elliptica*, though it certainly resembles the *Carpentaria* not at all. The handsome catkins in this case are at their best in the depth of Winter.

Rosemary and Lavender once used to be in every garden. Alas! they are so no longer, yet both are admirable evergreen (or rather evergrey!) shrubs, and the latter is really beautiful, as well as fragrant, when in flower. There is now much variety obtainable in Lavenders, the true Lavender, *Lavandula vera* being obtainable in pale and dark forms, as well as in forms of varying degrees of compactness.

There are, of course, many beautiful American plants still unmentioned, notably those of the Andromeda clan—such as *Pieris japonica* and *P. floribunda* and *Leucothoe Catesbaei*, besides the Heaths. Tall varieties of the latter which are very effective include *Erica australis* and *E. arborea* (and variety *alpina*), *lusitanica*, *mediterranea*, *Veitchii* and *stricta*.—*The Garden*.

STIMULATING PLANT GROWTH WITH CARBON DIOXIDE

(Continued from page 121)

off at 6 to the sewer. Here the gas is partially purified.

To still further clean it, the gas passes through pipe 3 to the second and last scrubber. Here a solution of soda (Na_2CO_3) is used in place of the water in scrubber number one. This liquid is not lost, it collects at C, passes through pipe 7 into tank E. From this point it is pumped at F to the top of the scrubber at 2, from whence it is sprayed over the coke again.

The gas, coming from the top of the second scrubber, is now clean and pure, and is carried to the ventilators or pump D, from which it is distributed through pipes to the greenhouse. This pump also serves the purpose of bringing fresh air into the boiler, its action being somewhat similar to that of a forced draft.

The pipes which distribute the carbon dioxide gas in the greenhouse, pass about one foot above the plants, and are provided with tiny holes about a foot apart. The process of gassing is considered complete when 2 or 3 per cent of carbon dioxide has been provided which, of course, gradually dissipates. Larger quantities of gas are injurious, therefore ventilation must be carefully watched to avoid the effects of an overdose. The results obtained with this patent process justify the remark that this method of growing plants quickly and comparatively inexpensively will ultimately become universal where the most progressive growing methods are practised.

California Waysides

OLIVIA BROOKS

I AM going to tell you something about some of the native shrubs I have seen while motoring in my "Ford" through the country surrounding San Diego, for, many and interesting are the different varieties growing in the mountains, valleys, and along the seashore. One always waits with keen anticipation for the coming of Spring in California, knowing that after the rains of January and February, the wild flowers begin to bloom, as also do many of the shrubs.

The enthusiastic botanist is thrilled with delight at finding, not only old friends, but making new ones amongst the great display of beauty and color that meets one on all sides from San Diego to the northern part of the State.

Around San Diego there are three interesting sumachs, all evergreen—the laurel leafed (*Rhus laurina*), "lemon-and-sugar-tree" (*Rhus ovata*), and the "mahogany bush" (*Rhus integrifolia*). These varieties belong to the same family as our eastern sumach, with pinnate leaves and long cardinal-red fruit clusters, which is so handsome growing along the roadside in the Fall.

The laurel leaf sumach (*Rhus laurina*) is the most common of these three shrubs, growing in great abundance on the lowlands, the foot-hills and well into the mountain regions. It is from six to fifteen feet high, of a wide spreading, bushy growth, with narrow and pointed, dull green foliage.

The new leaves, being red, stand out conspicuously, giving the whole shrub a bronze color. The flowers are white, in long clusters, said to be quite pretty, unfortunately I have not seen this shrub in bloom, as it blossoms in Summer.

The lemon-and-sugar-tree (*Rhus ovata*), a compact shrub six to eight inches high, is found only on the foot-hills well into the "back country." The handsome, shiny, ovate leaves are leathery in texture with an entire margin, and the rose pink flower clusters are so numerous that one is at once attracted to this shrub by its unusual amount of color. The berries are coated with a sweet substance which the Indians value as a substitute for sugar.

The "mahogany bush" (*Rhus integrifolia*) is a tough rigid growing shrub, which makes splendid compact hedges in gardens along the Pacific, where it takes most kindly to cultivation. Its leaves are dull green, thick, and rather serrated; the lovely, tiny pink blossoms seem to redeem this stalwart shrub, making it more delicate and pleasing to the eye. The little drupes are covered with an acid, oily substance, and are used by the Indians and Mexicans in making a lemonade-like drink.

One of the best known shrubs in California is the manzanita (*Arctostaphylos manzanita*). I have seen it growing all the way from a well developed small shrub to a typical tree. The flowers which bloom about Christmas time, are much like those of the blue-berry, belonging to the same family.

The manzanita has a great deal of character among the wild shrubs, for its smooth, satiny, red bark is most distinctive in contrast to the pale green leaves and tiny pink blossoms that cover the branches.

The name "manzanita" is Spanish for "little apple," and well describes the fruit of this bush.

"Indian Tobacco" (*Nicotiana glauca*) is the most widely distributed shrub along the roadside, in fact, I don't believe I have seen it growing anywhere else. It has spread rapidly, as residents can remember when there

were very few of these plants, which originally came from Buenos Aires. The shrub has a loose spreading habit, fifteen feet or more in height, with lovely, waxy flowers, long and tubular in shape, greenish yellow in color, hanging in graceful clusters.

The wild lilac of California (*Ceanothus*), which has so many varieties, is always an interesting sight to see, for, at its height of bloom it forms an amazing sweep of color from the foot to the top of a hill, filling the air with a delicious fragrance. It is a graceful, evergreen shrub, with small leaves, amongst which appear diminutive clusters of tiny, airy blossoms.

In December the most wonderful shrub seen along the sea-coast and in the foothills, is the California "Holly" or Christmas Berry (*Heteromeles arbutifolia*). This handsome bush was fast being exterminated by ruthless "wayside marauders," but now stands protected by law.

I have never seen anywhere on any plant, such large and magnificent clusters of red berries, making the whole hillside fairly glow with color!—a sight to be stored away for future thought. The Christmas berry has not the prickly leaves of our eastern holly, but oblong, serrated, leathery foliage.

The Chamise (*Adenostoma fasciculatum*) forms a great part of the Chaparral on the mountain slopes. Its dark green, almost black needle-like foliage, very feathery in appearance, makes a most effective background for the other wild plants that grow about.

One could go on indefinitely describing these wild shrubs, all so distinctive in character, and beauty of form, but being familiar with even a few adds interest and friendliness to any landscape.

NEW ENGLAND ASTER

THE New England Aster has become such a favorite that one hesitates to say anything about it. So much has been said in praise of this really beautiful species that its admiration has become something of a fad, and one suspects that a few of those who tout it so highly are just a wee bit insincere, writes Frank A. Waugh in *Florists' Exchange*.

Another curious thing about this species is that, although it is one of the most striking wild plants of our region, it has secured its extreme popularity in the planting of old-fashioned hardy perennial gardens which are in fact more or less formal. No complaint need be made about the use of the New England Aster in formal or semi-formal gardens, but we should not lose sight of the fact that it is one of the very best species for extreme naturalistic effects also. As it occurs in wild masses along streams or the borders of ponds it is magnificent.

A caution needs to be given with respect to the selection of colors. The species varies quite widely in the color of its flowers, including pink, rose, blue and purple and some of these shades fail to harmonize when placed together. In general it will be found that varieties of clear rose or amethyst blue are the most agreeable to the eye.

Still another point needs to be noted, viz., the beauty of this Aster in the Winter garden. Of course it is a fact that the beauty of the Winter garden is too much neglected by all of us. Nevertheless it is there and not always overlooked. The good landscape architect, at any rate, endeavors to make his gardens attractive at all seasons and should not forget the charm of the New England Aster as it appears under a mantle of fluffy snow.

RHODODENDRONS IN A DRY SUMMER

WE know of no hardy evergreen shrub that feels the effect of a dry Summer more than the Rhododendron. An experienced eye will be able to tell by a glance at the foliage whether the plants require water or not, because no hardy shrub shows more plainly than Rhododendrons that the roots are dry. If this is the case, they have a distressed appearance, the leaves hang down, and, in bad cases, the points of the young shoots droop also, so that altogether the plants have an unhappy look. Plants in this condition will not flower satisfactorily next year, and in bad cases not at all, for the reason that they cannot form flower-buds, owing to their distressed condition.

Those who have choice varieties of Rhododendrons should examine the soil round the roots to see if it is dry, and if such is the case give them a thorough soaking of water at once, repeating the application once a week during the Autumn, for these plants suffer as much in the Autumn, if the weather is dry, as they do in the height of Summer. The swelling of the flower-buds which is going on through the Autumn appears to tax the resources of the plants a good deal. The plants that will be likely to require attention first are those which occupy positions somewhat elevated, such as on sloping banks or raised beds. They are also likely to suffer from the want of water when the plants stand as isolated specimens on grass, and more particularly when the soil has to be made for them, as in such cases the roots have only a limited root-run in a suitable soil. The best plan to follow in any case where water is given to the roots of trees or shrubs is to apply it first and then mulch the surface directly afterwards. The mulching should be laid on 3 inches thick, and renewed as often as it becomes wasted. Where liquid manure is available, a liberal supply of it would also do good, but the roots of the plants should be first soaked with ordinary water, so that they may have the full benefit of the stimulant.—*Gardening Illustrated*.

AN APPEAL FOR THE WILD FLOWERS

STRANGELY enough, what is called civilization has, in many parts of the United States, destroyed many of the rugged beauties of the woods and hillsides, without putting anything in their place. Perhaps in New England, more than elsewhere, many of the beautiful things have been preserved. The farms have not encroached so relentlessly upon the woods as in the sections of the middle west and south, where land is more valuable. The mountains, too, remain a forbidding barrier to the thing called progress, and stand as sentinels over the treasures which they have guarded for centuries.

But modern invention has made it possible for the predatory tourist to extend his invasions farther and ever farther from the beaten path. Where he goes he is too often inclined to destroy, to take what he desires and leave nothing in its place. His camp site in the woods is a place of desolation as he strikes his tent and moves on. To the tourist family the wild flowers and the blossoming trees seem to offer the opportunity for the practice of vandalism. Nothing is safe from the hands of the greedy visitors.

In a bulletin recently issued by the University of the State of New York, an appeal is made to save and protect the wild flowers. It is shown that they are gradually disappearing even from those sections where once they were common. It is not what one person or one company of tourists gathers. There are still enough wild flowers for the thousands who will gather them thoughtfully and considerately. The menace to the wild life of the roadside

and woods is the greed of the city dweller who assumes that all he can find is his for the taking.

It should be remembered that the wild plant is like the cultivated shrub or flower in the garden. It is as easily destroyed, and it responds as quickly to the considerate treatment which it deserves. Those who gather flowers along the way are admonished to pick them carefully, just as they would select a bunch of blossoms from a garden or a conservatory. The unmatured blossoms left upon the stalk may flower and seed, thus renewing and increasing the beauty of the place, whereas a plant torn up from the ground and thrown aside is destroyed.—C. S. Monitor.

AQUATIC AND WATERSIDE PLANTS

AQUATIC and moisture-loving plants are extremely fascinating. May and June is undoubtedly the best time for planting or transplanting Nymphaeas. I have seen it stated that it is necessary to have three or four feet of water for the Marliac varieties of Water Lilies, but this is misleading; granted they will do in that depth of water, but I know from experience they succeed splendidly in water only one and a half feet to two feet deep. Young plants obtained this time of the year (May or June) may be very easily established. If for tanks with cement or concrete bottoms, planting in shallow baskets will be found the best method of establishing them in the water, placing in a few pieces of sandstone around them when in position to form a basin and filling in round the basket with rich turfy loam. This will keep the plants in good condition for many years after the baskets have disappeared. If the plants are required for ponds with ordinary muddy base, an easy and successful method of planting is to secure some thick turves of loam and tie one round the roots of each plant. Wire will be found better than string for keeping the loam in position until the plants establish themselves. Sufficient loam should be used to ensure keeping the Water Lilies upright when sinking them in their respective positions.

For waterside planting the following are all very beautiful aquatics and if submerged at various times during the year they will come to no harm. The Siberian Irises are charming both in flower and foliage for the leaves are quite graceful, giving a glorious effect at the waterside.

Iris Kämpferii, the Japanese Flag Iris, is splendidly effective in pockets by the water edge. Astilbes may also be used for the margins of lakes and ponds with grand effect.

Funkias in variety are noble subjects, with their massive foliage; Hemerocallis (Day Lilies) may also be used for the same purpose, with beautiful effect; both their orange and yellow spikes of blooms and graceful foliage are attractive in association with water.—*The Gardeners' Chronicle* (British).

TO OUR READERS

You have friends who would welcome the GARDENERS' CHRONICLE as a regular monthly visitor to their homes, just as you do, if they were familiar with it. We shall be glad to send a copy free to any address you may send us to make known how valuable and instructive a guide it is to all interested in gardening. We are constantly endeavoring to make the GARDENERS' CHRONICLE better and better—not with the assistance of Coué—but through our own individual efforts and you can help, if an idea comes to you that would make the GARDENERS' CHRONICLE even more interesting, if you will send it to us. It will be appreciated. EDITOR.

Planting Trees As Memorials

IN California we have the greatest trees of the whole world—the sequoias, write Pearl LaForce Mayer in *California Garden*. The sequoias are not only the oldest living things on earth but they are the tallest trees on earth and yet these are the trees that men have been cutting for boards and shakes and shingles! The known age of many of these sequoias which have been cut is from 1,100 to 3,250 years and when they are gone they can never be replaced!

John Muir, the great naturalist and tree lover says: "The forests of America must have been a delight to God for they were the greatest He ever planted!" The whole continent was at one time the most beautiful park of the whole globe as we can tell from fossil remains of trees and plants.

All other civilized nations are compelled to take care of their forests and continually replant them, but the Americans have been most prodigal in their waste of this marvelous natural resource. It is but in the past few years that we have begun to wake up to the fact that we must conserve these trees or very soon we will have none.

Theodore Roosevelt said: "A people without children would face a hopeless future; a country without trees is almost as hopeless; forests which are so used that they cannot renew themselves will soon vanish and with them all their benefits. When you help to preserve our forests or to plant new ones you are acting the part of a good citizen."

And Henry Van Dyke tells us:

He that planteth a tree is a servant of God;
He provideth a kindness for many generations,
And faces that he hath not seen shall bless him."

Again John Muir tells us that "Any fool can destroy trees. Through all the wonderful eventful centuries since Christ's time and long before that God had cared for these trees (in America) but He cannot save them from fools—only Uncle Sam can do that."

Every child should be taught both the material value and the æsthetic value of trees and to love and care for them in every way, and never to deface a tree no matter how large or small it is and no matter where it stands.

"He who plants a tree his name is blessed! But for him who ruthlessly destroys a tree—what shall his name be called in any tongue?"—so says the great Chinese philosopher.

From the earliest days of creation men have recognized the psychic personalities among the trees and in the annals of every great religion trees have stood forth prominently. In all great art and literature the subject of trees has been highly accented and the great men of all ages have felt a peculiar kinship with the trees.

James Russell Lowell speaks of this in the following verse:

"I care not how men trace their ancestry,
To ape or Adam; let them please their whim;
But I in June am midway to believe
A tree among my fair progenitors.
Such sympathy is mine with all the race,
Such mutual recognition vaguely sweet
There is between us,—surely there are times
When they consent to own men of their kin,
And condescend to me and call me cousin."

To all those who are well acquainted with them, trees are living, loving personalities and possess many habits and attributes which most people think are exclusively human.

Within the last few years the custom of planting trees for memorials has gained greatly in favor and in fact

what could be a more beautiful memorial than a tree? How much more wonderful to have a lovely green tree living in honor of one than to have the most expensive of stone monuments?

Felix Oswald says: "I can think of no more pleasant way of being remembered than by the planting of a tree. Birds will nest in it and fly thence with messages of good cheer. It will be growing while we are sleeping, and will survive us to make others happier."

"If thou art worn and hard beset
With sorrows that thou wouldst forget,
Go to the woods and hills! No tears
Dim the sweet look that Nature wears."

From time immemorial certain trees have always been used to represent certain ideas of spiritual significance. The palm has always been used to represent victory. It has dignity, poise and strength softened by attractive and kingly grace and it embodies exultation and joy.

The pine to us is an emblem of immortality. To the Japanese it signifies good luck and is supposed to bring long life and happiness. A pine tree is always seen gracefully leaning above a Japanese garden gate or at some picturesque spot along the garden wall.

The orange tree symbolizes prosperity, the olive achievement and so on down the long list of these benefactors of mankind.

"Hail to the trees!
Patient and generous, mothers of mankind;
Arching the hills, the minstrels of the wind;
Spring's glorious flowers and Summer's balmy tents.
A sharer in man's free and happier sense.
The trees bless all, and then, brown-mantled, stand.
The sturdy prophets of a golden land."

FOR AMATEUR DAHLIA GROWERS

DIG deep and a good square hole, throw out the subsoil and fill in with good surface soil.

Do not use too much coarse manure in the hole, better reserve same for a mulch.

Fine ground bone thoroughly mixed with the soil some time previous to planting, if possible, is a good substitute for manure. A much more dwarf sturdy growth will be obtained with the bone and the probability of more blooms, as bone does not create as much leaf growth as manure.

Set a good stout stake either before or at the time of planting; setting after the plant has started to grow often disturbs or breaks the roots.

Take the top out of the plant when a foot high; this keeps the growth near the base of the plant, no necessity for two or three feet of bare stalk.

In cutting blooms do not be afraid, cut down good lengthy sprays. Never mind if you do cut some few buds with the spray. The others coming after will be larger and better.

With some varieties if the side buds are picked off of the spray (disbudded) it will increase the size and quality of the bloom.

If you have a mulch around your plant of sufficient size you can water at any time of the day without baking the soil and the mulch will help retain the moisture.

Don't work the soil when it is wet. Often failure comes from this cause.—*Bulletin of American Dahlia Society*.

Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life.—*Marcus Aurelius*.

ON GROWING NARCISSI IN AMERICA

SINCE the Federal Horticultural Board of the United States Department of Agriculture has decreed that after 1925 the free importation of narcissus bulbs shall be forbidden, William H. De Graaff, scion of the House of De Graaff of Holland, which for three generations has been specializing in daffodils and tulips, has been traveling in this country to find soil and climatic conditions which will make the successful commercial production of narcissi in this country possible.

He has visited the Pacific Coast, particularly studying the Willamette Valley section, and recently has been going over the conditions on Long Island, New Jersey and



William DeGraaff and John Scheepers

South Carolina, and feels firmly convinced that it will be impossible to successfully raise narcissi for commercial purposes.

Before sailing for Holland, he expressed his regrets that some of the Holland jobbers of bulbs are inducing farmers and growers in various parts of this country to buy large quantities of planting stock of various daffodils, which is not only doomed to failure but is bound to deplete the stocks available in Holland and is certain to cause an advance in prices of bulbs for delivery this Fall and for next year.

The House of De Graaff was among the first to start the scientific production of narcissus bulbs on a large scale. Many new and meritorious varieties now listed in catalogues were produced by this firm and many great novelties have won highest awards at the recent narcissus shows in Holland and England. The accompanying illustration shows Mr. De Graaff with John Scheepers of New York so-journing at Atlantic City.

MASSACHUSETTS AGRICULTURAL COLLEGE

The Department of Floriculture at the Massachusetts Agricultural College, Amherst, Mass., will conduct a special one week course in commercial floriculture for the florists of that state, beginning June 25.

The program will be announced in this paper at a later date. It is hoped that those interested will keep this date in mind.

The Lord and Burnham Co. has donated to the college a model greenhouse, 11 feet by 8 feet 4 inches, of their No. 1 and No. 2 greenhouse construction, which will prove invaluable in the teaching of greenhouse construction. A set of blue prints has also been provided for each student. The department wishes to express its appreciation to the Lord and Burnham Co. for their kindness and co-operation in making its work more efficient and of greater benefit to the students and florists.—R. T. M.

SEEDING LAWNS IN LATE SUMMER

SPRING is not the best time for seeding lawns; late Summer is vastly better. Seeding done at that time, while the days are growing cooler and plants get the benefits of heavy night dews, insures a good lawn the following Spring, writes a contributor to the *Florists' Review*. There can be no certainty of lawns seeded in Spring being a complete success, unless an ample water supply is at command. Plants seeded in Fall have deep roots and withstand the Summer droughts far better than the former. Far too much work is left each year until the overcrowded Spring season. This applies to the planting of trees, shrubs and hardy herbaceous perennials. Some day, it is to be hoped, more people will appreciate the great advantages to be gained by Fall planting.

But to refer back to lawns, there are always many calls for work on lawns at this season. Entirely new lawns should be liberally manured, care being taken to bury the manure well. You should rake the lawn most thoroughly, in order to get rid of as many roots, stones and weeds as possible. It should be made firm by tramping or rolling, according to the size and nature of the ground to be sown down, in advance of any seeding. Iron rakes should then be used to loosen the surface before seed is sown. There are some good mixtures of lawn seed offered. As a general rule, some of the grasses included are ill adapted for the average lawn and will usually disappear the first Summer. Special grasses are needed in the warmer states, but for the more northerly ones the writer has found Kentucky blue grass the best stand-by. Two parts of this grass to one part of redtop makes an excellent mixture, and, if white clover is liked, add that at the rate of one pound to twenty-five pounds of other grasses.

The clover is especially helpful in light soils. It will retain its greenness during droughts and adds much fertility to the soil. It is best to sow lawn seed fairly thickly, and in seeding be sure to go over the ground both lengthwise and crosswise, in order that there may be no bare spots. A thorough raking and hard rolling must follow seeding.

THE CHRIST-AWAKENING

MARIAN J. COBB

How sweet the story of that long ago,
When the disciples sailed at close of day,
And as the ship launched forth, the Master lay
Asleep upon a pillow, resting so.

But as he slept, the angry waves did break,
For o'er the sea a sudden wind-storm swept;
While the disciples rushed to where he slept,
Crying, "Awake, we perish! Master, wake!"

Then he arose; and with his "Peace, be still,"
Rebuked the winds, and bade them do no harm.
The tempest ceased; and lo, there was a calm;
The waters fell, obedient to his will.

Sometimes, the Christ-idea seems asleep
Within my fragile bark, the ship of life.
Ah, then it is that winds and storms are nigh,
And angry waves engulf me, mountain deep.

But when, at length, through faith and love and prayer,
The Christ awakens in my consciousness,
The healing Christ, that wakens but to bless,—
The tempests cease; and lo, a calm is there.

To that sweet story of the long ago,
My thought again, and yet again, hath turned;
For in its deeper meaning I have learned
The sweetest lesson that the heart can know.

Christian Science Sentinel.

Foreign Exchange Department

THE ROCKY MOUNTAIN COLUMBINE.—It would be difficult to name a Columbine which is quite so attractive as *Aquilegia cœrulea*. It also possesses the merit of being distinct, the perfectly upright poise of the flower at the head of the stem being a characteristic almost unique among its kind. This very lovely species is of somewhat slight growth, yet quite rigid and erect. The comparatively scanty, glaucous foliage, small-leaved and delicate, is mainly gathered about the base of the flowering stem, which latter ascends to the height of about 1 foot. The long-spurred blossoms are very large, creamy white in the centre, the remainder being a good firm blue with perhaps the slightest hint of cool lavender to complete a most delightful tone. These flowers open early (before most others), and this is a matter of no small moment, since it ensures a crop of true seed, which is a boon to many who have to treat *A. cœrulea* as a biennial. This plant, however, is by no means always difficult. It is often quite permanent in gardens, where it can be afforded a gritty, or even stony, soil with some leaf-mould. But while it must not be too sodden in Winter, it undoubtedly enjoys a cool root-run, such as a rock garden ledge sloping to the north-west might afford. Seed germinates quite freely and the young plants give no trouble.—*The Garden*.

THE AFTER-CARE OF AZALEAS.—No hard-wooded plant is more beautiful in its season of flowering than the Azalea, and in the hands of an amateur gardener, unfortunately, no plant receives less consideration immediately its blooming season is over. In numerous small houses Azaleas are hurriedly withdrawn when the flowers have faded, to make way for something else coming into beauty. It is the harsh treatment meted out to these showy flowering shrubs which makes for failure the following season. Too seldom does the amateur recognize the importance of continuing the plants in the same genial atmosphere, with attention to watering and syringing to induce new growth, before any attempt should be made to place the plants in cooler quarters. I am not drawing an imaginary picture when I say that a cold frame in Spring, where the temperature at night approaches freezing point often, and where the roots are allowed to become dry, does not conduce to an output of new growth, yet one may see this every year. Surely, the beauty of Azaleas is such as to warrant special attention being given them as soon as their blooming season is over, and to pay regard to watering, bearing in mind the close, retentive nature of peat in which they are grown. With all hard-wooded plants, when watering is needed it ought to be done thoroughly to ensure the roots getting full benefit.—*Gardening Illustrated*.

ENOTHERA SPECIOSA.—This North American plant is lovely, carpeting a bed of La Tosca Rose. The large, satiny white flowers, which change to a rosy shade with age, are produced in great numbers upon the 18-inch stems, and are lovely by day, as well as night, when their charming fragrance is more in evidence. It is a choice and graceful plant, with wiry stems, and is most desirable and lasting as a cut flower. Although of perennial character, it is not strictly hardy everywhere, for which reason a few cuttings should be taken about the end of September each year and placed in a closed frame, where they strike freely.—*Gardening Illustrated*.

DIGITALIS AMBIGUA.—There is much to be said for the yellow Foxglove as a plant for the sunny or shady border, or for naturalizing in the woodland garden or shrubbery. Though much lower in stature than the common native species, *D. ambigua* is very rigid and erect, not given to being blown over, nor does it look shabby when the bells begin to fall. The prettily tapered spikes (about 18 inches) rise from a tufty rosette of long, pointed leaves of a rich green, and smaller leaflets of the same narrow form grow upon the lower parts of the flowering stem. This species has, moreover, a perennial nature to recommend it, and it will, as has been suggested, produce self-sown seedlings in any suitable situation. The flowers are a good size and much superior in color to those of *D. lutea* or *leucophylla*.—*The Garden*.

POTENTILLA NEPALENSIS WILLMOTTIE.—If it were only on account of its long blooming season this *Potentilla* would rank high among rock plants, for it is the first to come into flower in early Spring, and carries on until nearly Christmas. It has, however, other claims to attention, among which is the lovely cherry red of its wide-open flowers with their eyes of jet set off by anthers which sparkle with gold dust. *P. Willmottiae* is, moreover, very easy to please, asking no more than a sunny spot in any free soil, and there it will prove quite hardy and permanent. It is as neat and orderly in shape as it is beautiful, and seldom exceeds 6 inches in height.—*The Garden*.

GILLENIA TRIFOLIATA.—For a cool soil, or bog, with or without shade, *Gillenia trifoliata* is a plant whose grace of form will win it a place among the choicest *Spiræas*, to which it bears some affinity. This is a herbaceous perennial, quite hardy, growing up to about 2 feet, and making a bold mass of its three-lobed leaves and many-branched stems which terminate in the flower sprays. These latter are not showy, nor are they produced in any great abundance, but the little white stars are very refined and delicately beautiful.—*The Garden*.

LINNEA BOREALIS.—The Twin Flower of northern forests, *Linnea borealis*, is the delight of all who can please its capricious nature and the despair of all to whom it will offer no response. Yet it is not as difficult a plant as many alpine. What it chiefly needs is a cool root-hold in a sweet old vegetable mould and, if possible, a half-buried and mossy decayed stump over which it can send its prostrate trailing growths which root as they proceed. A half-shaded or quite sunless spot appears to suit this plant best, although when established it will often do well in full sun. Frequent sprayings during the first Summer, with shelter from parching winds, are undoubtedly helpful. The two flowers, which are borne on short, erect stems at intervals along the creeping branches, are a delicate rose pink and indescribably dainty. *L. americana* (*canadensis*) has rather larger blossoms of a slightly deeper color. This form which, by the way, is more amenable to cultivation, flourishes all through the more westerly woods of the Canadian Rockies and extends right down to the sea in British Columbia, making any moist and mossy place its home.—*The Garden*.

CUTTING AND PACKING FLOWERS.—To cut and pack flowers at once is a mistake, especially during hot days, when much of their moisture will have been evaporated, and they are liable to lose the rest by breeding or absorption. If the flowers are to be sent away early in the morning they are best cut overnight and packed in pans or jars of water, and they should be cut in the morning and similarly treated if they are to be despatched in the evening. They will thus be perfectly fresh and their stems charged with moisture. Roses especially should not be packed in a full-blown state; to be really serviceable when they reach their destination, they ought not to be more than half-blown when cut. Most other flowers should be fully expanded, and should be cut as soon as that stage is reached. It is only a disappointment to send anyone a quantity of single pelargoniums, as, unless these are gummed, they are certain to fall to pieces, and there are a few other single flowers that are not much better in that respect. Water lilies, which are so much prized, should be cut and packed when the buds are just bursting, and those receiving them must open the petals with the hand. The iris family should also be packed in a bud state; primroses, snowdrops, pansies, and other small flowers are best bunched, and these will thus be found to preserve one another. Many err in being too cautious—do not, in fact, pack the flowers close enough. The lid ought always to fit down tightly, as the flowers are certain to shrink somewhat, and, being laid flatly and closely, are not so easily crushed as some may imagine. Wooden boxes are the best to use. There is no better packing material than clean fresh moss, and no worse than cotton wool, which robs the flowers of their moisture, sticks to them, and spoils their appearance.—*Gardening Illustrated*.

PROPAGATING RHODODENDRONS.—The best method of propagating rhododendrons is by layers. This is far better than grafting, but, unfortunately, only a few nurseryman adopt layering to increase their stock. Layered plants make the handsomest bushes, and, of course, one is not troubled with suckers of the *R. ponticum* or other kinds employed as stocks. The layers may be put down in Spring, and again in early Autumn. Peat with a quantity of sand added is the best soil in which to insert the layers. The lower branches must be utilized for the purpose. If they cannot readily be brought down to the ground, you may cut a notch halfway through the branch, so that it will bend but not break away totally from the parent plant. Last season's growths make the best layers. Strip off a few of the lower leaves, then take the shoot in the left hand and make a cut about 1½ inches in length with a sharp knife up the centre of the shoot. This is technically called tonguing the shoot. A flat layering-trowel, with a straight edge, should be at hand. Insert this in the soil so as to make a cut about 5 inches or 6 inches deep. Then bend the prepared shoot very gently, and fix into the soil with some wooden or wire pegs in such a manner that the tongue formed by the cut points downward. See that it rests upon the soil at the bottom of the opening made by the trowel, then press the soil firmly around the layer with the handle of the latter, and the operation is complete. If dry weather supervenes, a watering now and then will be beneficial. The layers make the best plants if allowed to remain on the stool two years, although they will root more or less freely in twelve months. The flower-buds should be removed from the layers before inserting in the soil.—*Gardening*.

Brief Horticultural Jottings

One of the most beautiful of Spring flowering shrubs, of comparatively large growth, is the male form of the Goat Willow, *Salix Caprea*. Before the frost is hardly gone, the large ovate spikes of yellow anthers make a brilliant show. In addition to its appearance, it has a fragrance which is agreeable to most persons. The female form is far less handsome. What is known as the Kilmarnock Willow belongs to this species—this being the female form of the same species, which has assumed a weeping habit. This is almost destitute of fragrance.

Considering the great beauty of the male, it is rather surprising that it is not more generally employed in ornamental gardening. The weeping variety of the female form is grafted on the male, and very often the grafted portion dies away, leaving only the stock living, and it is chiefly from these stocks that the male plants, occasionally seen, have been distributed, for there has been very little demand for the male plants directly from American nurseries.—A. McL., in *Mechanics' Monthly*.

According to the *Kew Bulletin*, the famous tree known as the Big Tree of Tule at Santa Maria de Tule, eighteen miles from Oaxaca, Mexico, is the oldest in the world. This tree is closely related to the swamp or deciduous Cypress (*Taxodium distichum*), and is known to botanists as *T. mucronatum*. Its height is about 150 ft., the diameter of its trunk is 50 ft., and its age is supposed to be about 5000 years. In 1908 C. J. Chamberlain, of the University of Chicago, saw the tree, and it was then in perfect health, not a dead twig being in sight. "Before the Pyramids of Egypt were built it was a sturdy tree, and before Moses led the children of Israel into the wilderness it must have reached the usual size of the species; when Rome was founded it must have been known as a big tree."

The International Horticultural Congress assembled at Ghent has decided to submit complaints to the League of Nations because of the restrictions decreed by the United States on the importations of plants under the pretext of disease. It was also decided to refuse to supply the United States with specimens of any new varieties.

The English delegates did not vote. It is stated that Americans do not refuse to admit on the grounds of disease new plants from Europe which they themselves desire to cultivate. As the American action affects all countries, an international effort will be made to arouse American public opinion on the question.

At a recent meeting of the American Rose Society J. Horace McFarland reported he fears that as a result of the death of Congressman Mann, the proposed rose show garden in Washington, D. C., of which he was one of the active supporters, has received a serious set-back and without his support may fail to become a reality. Elaborate plans for the garden have already been drawn up by Olmstead Brothers.

While visiting the tomb of Tut-ankh-Amen Col, William Boyce Thompson secured some ancient Egyptian seeds with which he will experiment at his laboratory on his estate at Yonkers, N. Y. He believes that after proper experimentation he will be able to reproduce some of the plants and flowers of ancient civilization.

According to the Pennsylvania Bureau of Plant Industry the rose bug can be successfully fought by using a sweetened arsenate of lead by applying to a gallon of water one ounce of powdered arsenate of lead, and two or three tablespoons of molasses. This is to be applied just before the rose bug appears.

A Hawthorn, over one hundred years old, was recently moved from the center of the city of Harrisburg, Pa., to the home grounds of R. S. Shoemaker in the suburbs. The tree had to make room for a new building, and Mr. Shoemaker considered it worth saving, not only because of its beauty but for its age and history.

It now seems likely that when the Sixty-eighth Congress convenes next December some definite action will be taken providing for the removal and enlargement of the U. S. Botanic Garden at Washington, D. C. Senator Pepper, chairman of the Senate Library Commission, which has the jurisdiction of the beautification of the Capitol grounds, is much interested in the project. He is supporting Director George W. Hess of the Gardens in what he is seeking to obtain to make it rank with the foremost of its kind.

A new potted plant, exceptionally well suited for Winter growing and possessing great possibilities, was recently exhibited by

Dr. F. V. Coville, botanist of the Department of Agriculture. The new creation is a miniature *Rhododendron* grown from seed under glass, and is interesting because of its small size. The plant exhibited (in a six-inch pot) was a little less than two years old, and approximately eight inches high. Dr. Coville explained that it flowered well in pots, the blossoms being about the size of those of the trailing *Arbutus*. Those on the plant were of a delicate pink color and were quite plentiful. The leaves are small. The plant, called the Mayflower *Rhododendron*, comes from the mountains of southwestern China, and has been in cultivation in Europe, especially in France and Germany, for several years. It is quite hardy.

L. A. Chance.

To raise funds for Prevention of Cruelty to Children Society, prominent Westchester County, N. Y., residents will charge fifty cents admission to their grounds in May and June. Among others, Greystone, the estate of Samuel Untermyer at Yonkers, N. Y., will be opened to the public.

Comments from Our Readers

In your article "In the Garden and in the Greenhouse" of the April number, you ask information of the poem which has ever been a great favorite with me. You will find it in the exquisite "Bitter-Sweet" of John G. Holland, published in 1892 by Charles Scribner's Sons.

He makes a master character, "David," say the lines:

"Life evermore is fed by death,
In earth and sea and sky;
And, that a rose may breathe its breath,
Something must die.

Earth is a sepulchre of flowers,
Whose vitalizing mould
Through boundless transmutation bowers
In green and gold."

There are six other gems of verses, to my mind the following one of the most beautiful:

"The milk haired heifer's life must pass
That it may fill your own
As passed the sweet life of the grass
She fed upon."

You would appreciate every word of the book. Very glad to inform you of its wonderful existence.
Larchmont, N. Y.

C. G. McV.

In the April number you have an item in "Things and Thoughts of the Garden" which interests me very much. I, too, dislike the "abominable draperies" and millinery so freely used by some florists in their displays.

You say, "I may be old-fashioned, but I am opposed to giving premiums to lavish displays of ribbons, chiffons, colored burlap, and tissue paper." To me these things mean only vulgar display, an offense against the beauty of nature unadorned.

I wish some one could end that fad.

Westfield, N. J.

A NATURE LOVER.

Department of Book Reviews

The eighth edition of "The American Rose Annual," published by the American Rose Society, should be a treasured volume in the library of every rosarian, professional or amateur. The book contains a fund of valuable information on the most favored of all flowers, and J. Horace McFarland, the editor, is to be congratulated on its compilation, which comprises rose news and notes from practically every part of America. Even if the members of the American Rose Society were to receive no further benefits from their society than the receipt of their rose annual, they are well compensated for their membership.

"How to Grow Roses," by Robert Pyle, now in its fourteenth edition and better than ever, contains advice and information that is valuable to all who grow roses whether for pleasure or for profit. It is well illustrated, the color plates being especially fine. Its chapters tell of the best selection for special sections, of proper planting, pruning and protection of roses, of hybridizing and of own root and budded or grafted roses, in short all that the rose grower should know. The book is obtainable through Conard & Jones Company, West Grove, Pa. Price, \$1.50.

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa., August 14, 15, 16, 17.

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Craig, Weymouth, secretary.
WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.
CLEVELAND, O.: R. P. Brydon, chairman; Arthur Brown, Cleveland, secretary.

1923 CONVENTION

As the report of the last meeting of the western Pennsylvania branch, which appears on the next page, shows, the Pittsburgh and Sewickley members are actively engaged in preparing for that event, which will take place at the Fort Pitt Hotel, August 14, 15, 16, 17. While your secretary is not at liberty to reveal the secrets, he knows some big surprises are being planned for the visitors, both of an instructive and entertaining nature.

Probably but few gardeners know that some of the largest plants to be found anywhere in America are to be found in and near Pittsburgh. So note the date and arrange your holiday so that you may see some of the mammoth steel plants. Pittsburgh's parks and the country estates near that city have also beautiful specimen plants which naturally come nearer to the heart of the gardener.

A SEVERE ARRAIGNMENT AND AN EVASION

In a recent issue of the *Florists' Exchange* there appeared a severe arraignment of the gardeners relative to professional ethics, which did not pass unnoticed by those assailed, and called for a strong protest. As the *Florists' Exchange* did not see fit to publish the protest received it is here given:

"To the Editor of the *Florists' Exchange*:"

"After the apparently friendly spirit which the *Florists' Exchange* has been manifesting towards the professional gardener, that it would publish the slanderous statement which appeared in the *Boston Evening Transcript*, reflecting on the integrity of the gardening profession, especially after its Boston correspondent had informed it that he had been misquoted, was certainly a most astounding act.

"I have always regarded Mr. Thommen highly, and believed him to be a friend of the gardener, so it seems incredible to me that he would make the accusation he does confess to have made before the committee of the Massachusetts Legislature. The *Boston Transcript* reports him as having appeared before the committee as a gardener. I did not know that Mr. Thommen was a gardener, but I was under the impression that he was formerly engaged in one of the commercial branches of horticulture. In any event, if Mr. Thommen did appear as a gardener, and not as the correspondent of a trade paper, which he now is, he must have created the false impression that he was present as a representative of the profession which was being attacked, while no one was present in defense of it.

"Had I had any notion that such a despicable stunt was to be pulled off, I would not have failed to have been present to defend the gardener and his profession, and to make known that there are many employers who close their eyes to their gardeners accepting commissions, in lieu of paying them a living wage, calculating that the payment does not affect their pockets, but the dealers' profits, and thus I would have shown that the gardener often becomes a victim of circumstance; and I would also have conceded that all gardeners are not 'Simon pure,' but that there are some black sheep among them just as there are among the politicians who sat in judgment of them.

"While Mr. Robert Cameron in his much discussed paper on the subject did not represent his profession as being 100 per cent perfect, he laid the blame where it belonged, at the root of the evil, and to which the remedy should be applied. As the *Florists' Exchange* thought so well of Mr. Cameron's presentation of the facts as to refer to them again at some length in its issue of April 14, why then did its correspondent not present Mr. Cameron's side of the case before the legislative committee instead of attempting to besmirch the reputation of his profession?

"The National Association of Gardeners, I believe, was the first organization among horticultural bodies to go on record as opposed to paying or receiving commissions, and since then along educational lines has endeavored to minimize the practice. Experience has shown that legislative enactments even 'with teeth in them' never have resulted in accomplishing what they were intended to, and are never likely to. Somehow, the 'teeth' seem to become dull in the setting. Possibly if a somewhat similar policy as that of the Association were pursued by the commercial interests, and a little persuasion injected, something really tangible might be accomplished.

"It will be interesting to learn what justification the *Florists' Exchange* can offer for assailing a body of men who are striving to elevate their profession, and who have already gained the confidence and support of many prominent men and women, the owners of some of the largest country estates in America, in their efforts. The *Exchange* can only uphold its position by demanding of its correspondent that he substantiate his accusation. If he cannot do so, it will prove that it is simply more of the 'loose talk' which at times is circulated on the subject at issue without the least evidence of proof. If the *Florists' Exchange* values the respect of the gardeners in America, it will come forth manfully and publicly apologize for the slur it and its correspondent, for whom it must assume responsibility, have cast on them.

"M. C. EBEL, Secretary,

"National Association of Gardeners."

The *Florists' Exchange* did, however, respond with an editorial of some length dwelling on glittering generalities of the subject at issue, and in which it referred to the above protest as follows: "it has been forcibly brought to our attention by the secretary of the National Association of Gardeners, and by a member of that same fraternity, that we were most derelict in our duty in (1) printing the report at all, and (2) having printed it, in not having come to the defense of the maligned gardeners with denials of their guilt, etc."

As this again called for a reply, the following communication was addressed to the *Florists' Exchange*:

"To the Editor of the *Florists' Exchange*:"

"Why has the *Florists' Exchange* not followed the usual procedure and published the protest which it received from the Na-

National Association of Gardeners, and not casually refer to it editorially, thereby further misconstruing the position of the gardener and placing his association in a false light through misrepresentation, instead of confining itself to the actual facts as contained in the protest?

"Your statement in your editorial of this week's issue, referring to the secretary of the National Association of Gardeners, is an incorrect one. You have not been criticized for printing any report of the hearings. You were criticized for exulting over the uncorroborated accusation of your correspondent at one of the hearings. You have not been asked to come to the defense of the gardener. He is already ably defended.

"In the name of justice, I now ask that you again publish the editorial comment complained of, which was affixed to the report from your Boston correspondent of the Legislative hearing, and appeared in your issue of April 21, and the protest of the association. Then say what you will in your defense, and let it rest with your readers to pass judgment whether you were justified in publishing what you did.

"Above all, play fair. That is the only favor the gardeners are seeking.

"M. C. EBEL, Secretary,
"National Association of Gardeners."

The *Florists' Exchange* has not had an opportunity to comply with the request contained in the last communication from the association as this paper goes to press, but I trust that it no longer misunderstands my attitude in the matter. I do not now condone, nor have I ever condoned the practice of paying commissions any more than I would condone the practice of maligning a particular craft for offenses that may be committed by a minority of its followers.

It sometimes appears that there really has been something new uncovered about the practice of giving "gratuitously," but it is as old as history itself, for was not our first gardener, Adam, tempted by gratuitous advice? Abuse will never avail much, but as the world grows better and man becomes more enlightened on the difference between good and evil, we may expect to see the evil complained of gradually abated. In the meanwhile, let him who has not sinned cast the first stone.

M. C. E.

Postscript: The *Florists' Exchange*, is out with another vague editorial, evidently preferring to pursue this course instead of publishing our protests and let its readers reach their own conclusions. Its plea for not doing as it was asked to do is, "matters of immediate interest and importance render it impractical."

As to its own defense it states, "we don't happen to feel that we are on trial so must refrain from that also." It concludes its editorial with "we feel that in the interest of progress this subject should be, and is considered, closed."

Silence is golden! But—I wonder whether the *Florists' Exchange* wishes the gardeners to accept its desire to silence further discussion as a confession of guilt on its part though lacking the spirit of fair-mindedness to admit it?

M. C. E.

INTERESTING YOUR EMPLOYER

At this season of the year when Nature presents its most charming appearance and all are enraptured over its wondrous beauty is the time that you should extend an invitation to your employer to become interested in our association as a sustaining member, and to lend his support towards elevating the standard of our profession which means as much to him as it does to the gardener. Sustaining membership dues are ten dollars a year. Approach him on the subject, and if you cannot furnish all the information he may desire, tell him you will have the secretary write him fully.

Your secretary is endeavoring to keep alert to the welfare of the gardener and his profession. He trusts the time is not distant when he may move about more actively and come into more frequent direct contact with the members. Until then the members can co-operate with him to increase the association's prestige through enlargement of its membership by interesting their employers and fellow gardeners who are not yet members.

WHY NOT MAKE YOURSELF KNOWN?

Where are the men who should now be replacing the former well known writers, whose names appeared regularly as contributors to the horticultural press of the past? I know there are many among the younger gardeners who can very ably contribute notes on interesting and unusual experiences, both in the garden and under glass, which would be a departure from the usual staid cultural articles which frequently are mere repetitions of what has oftentimes been written, if they will only make up their minds to do so.

It is not essential that the articles be lengthy to make them interesting. Pithy notes on the merits of particular plants for different locations—ideas which will help to create individualism, and stimulate the interest of the many gardeners—invitations

on the use of native species to popularize them in our American gardens—anything which will arouse a greater enthusiasm in gardening, that is what is being sought by professionals and amateurs alike. Readers are no longer as keenly interested in the plant's history as they are to have more of its general adaptability for particular purposes. They like to read of experiments which are proving better than some of the old school methods and they look upon the professional gardener as being best fitted to advise them. That the *GARDENERS' CHRONICLE* may give to its readers what they most desire, your Secretary asks the gardeners to contribute such notes to their official organ as they may believe will prove helpful to others. They are not asked to do this merely for glory, but they will be compensated for all notes and articles accepted. This request is made to the older as well as the younger gardeners. Address all your contributions to EDITOR, *GARDENERS' CHRONICLE*, 286 Fifth Avenue, N. Y. C.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of this branch of the National Association of Gardeners was held in the Carnegie Library, Pittsburgh, on Tuesday, April 17th, at 8 P. M. Manus Curran, chairman, presiding. John Carman, chairman of Publicity; Aug. Frishkone, chairman of banquet; Niel McCallum, chairman of Lecture; William Thompson, chairman of Traffic; David Fraser, chairman of Entertainment; and Henry Goodband, chairman of Programme, with Manus Curran as general chairman, reported and outlined their plans in detail for the National Convention to be held on August 14, 15, 16 and 17 at the Fort Pitt Hotel, Pittsburgh. Judging by the enthusiasm shown by the committees and the plans already formulated the Pittsburgh convention is going to be "something different." This great industrial centre offers many unusual attractions, and a highly interesting programme is being arranged. Louis Barnett was appointed chairman of the Finance Committee. Niel McCallum gave a short but interesting talk on "The Origin of the Darwin," which was much enjoyed by the members present. Our next meeting will be held on Tuesday, May 15th, at the Carnegie Library, Pittsburgh.

HENRY GOODBAND, Secy.

ST. LOUIS BRANCH

The March meeting was devoted to a farewell party to George H. Pring, who departed on April 1st for a collection trip to Columbia, South America. This meeting was largely attended. Mr. Pring stated that the object of his trip was to collect showy flowered Cattleas such as *Cattleya Triane* and *Cattleya Schrederae* and incidentally other tropical plants for the Missouri Botanical Garden. The trip will take several months, and he will undoubtedly return with a vast amount of experience as well as plants. He was wished a hearty godspeed by those present. Refreshments were served and good-fellowship prevailed.

The April meeting was given over to an illustrated lecture by Hermann Schwarz, on "The Great Out-of-Doors." Mr. Schwarz told about the value of nature study, the need for conservation and gave most interesting life histories of insects, animals and birds. It was decided to arrange for a meeting in the field during the month of May.

P. JENSEN, Corr. Secy.

CLEVELAND BRANCH

The Cleveland Branch of the National Association met at the Alhambra Restaurant on Monday, April 30, at 7 o'clock. R. P. Brydon was elected chairman and A. Brown, secretary. All were very enthusiastic on the formation of the branch here, and anticipate much good to arise from it. For being only the second meeting, the attendance was good. Indications are that each meeting will bring in new members. Three applications for membership in the N. A. G. were favorably passed on at this meeting. Mr. Brydon gave an interesting account of the Directors' meeting in New York, and discussions on several topics followed. The next meeting has been called for Monday, June 18, at the Alhambra Restaurant at 7 o'clock.

A. BROWN, Secy.

NASSAU CO. L. I. BRANCH

We understand that the meeting of the Nassau County Branch held at Westbury, L. I., on April 26, was a successful one with a good attendance and that the discussions were both interesting and lively. This, however, is all the data we have on hand.

Some of the Long Island members no doubt wonder why the *GARDENERS' CHRONICLE* does not report the meetings of their branch as it does those of local branches located in other parts of the country. We have done everything within our power to obtain reports for publication, and the local secretary promised to furnish us with the reports of the last two meetings in time for this issue. However, they have not been received as we go to press. In all likelihood, with the late season and accumulated work the secretary did not have time to give to his reporting.—EDITOR.

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Hardy and tender, day and night blooming, should be included in the selection for large estates and public grounds.

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NEW MEMBERS

Active Members: Henry A. Dombrowsky, Locust Valley, L. I.; Ernest E. S. Fletcher, Afton, Va.; Frederic Heutte, West End, N. J.; Hugh Campbell, Trenton, N. J.; Jack Pyle, Bernardsville, N. J.; Henry Knight, Morristown, N. J.; William J. Bruce, Cleveland, Ohio; Ernest E. Goatley, Cleveland Hgts., Ohio; James Gibb, Cleveland Hgts., Ohio; Thomas Waring, Cleveland, Ohio; A. C. Macdonald, New York City; James Cartwright, Suffield, Conn.; Max A. Elwart, College Point, N. Y.

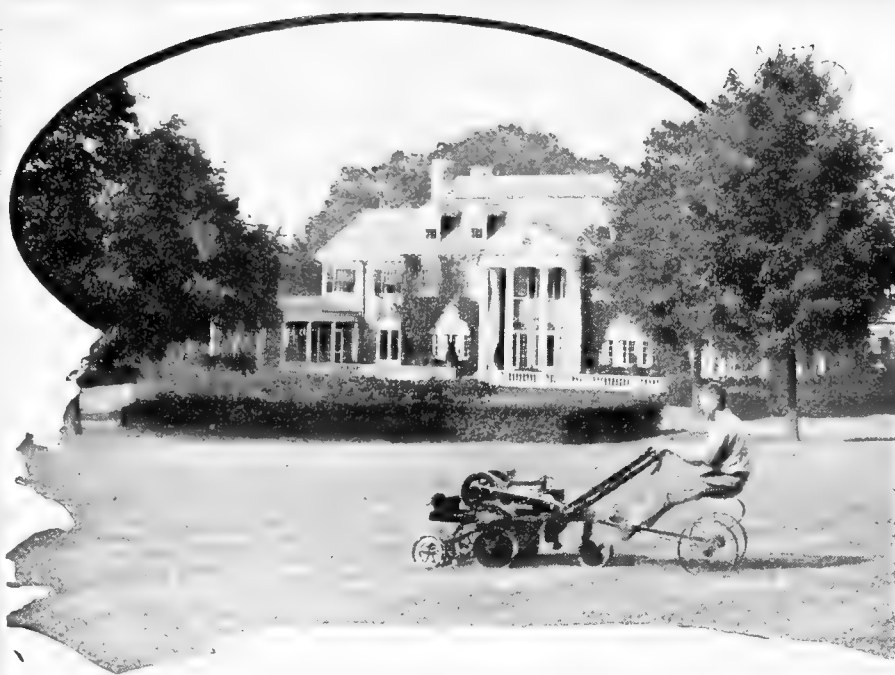
LOCAL SOCIETIES

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting of this society was held at Greenwich, Conn., April 10. One new member, Robert Tickner, was elected for membership and two proposed. The exhibits were numerous and good, Wm. Smith receiving first prize and a cultural certificate for a choice vase of carnations, Princess Dagmar; John McCarroll, second, for a vase of Laddie; William D. Robertson, third, for vase of Benora. Other exhibits included a vase of Laddie and Didiscus from James Stuart; vase of Lilium Harrisii from Wm. J. Sealey; Antirrhinums and Stocks from Ralph Salerno; Antirrhinums from John McCarroll; Sweet Peas from W. D. Robertson; Asclepias Currassavica from Edwin Beckett; Mignonette from H. F. Bulpitt. Mr. Bulpitt also received first in vegetables for some fine bunches of rhubarb.

An illustrated lecture on "Old New England Gardens" will be given at our May 8th meeting by Mr. Underhill, of Boston. Mr. Underhill is well known for his splendid lectures, so all members are urged to come.

It was decided to hold the Fall show along the same line as last year, namely, for the benefit of the Portchester and Greenwich hospitals. The date for the show will be decided on at our next meeting. A note of thanks was given to those members who



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Ideal 30" mower cuts a 30 inch swath and mows from 6 to 7 acres a day.

IDEAL

Power Lawn Mowers

achieved such splendid success at the recent flower show in New York.

J. G. Curtis entertained us with a splendid lecture on "Plant Feeding." Mr. Curtis is an excellent orator, and had a world of knowledge for us on this subject. His lecture brought considerable discussion. Mr. Curtis answered questions of various members. Other meetings, as instructive, are to be held in the coming months. Every member should strive to be present.—A. K. Cor. Secy.

SHORT HILLS GARDEN CLUB

The Short Hills Garden Club will hold its fifteenth annual show at the Short Hills Club, Short Hills, N. J., on Friday and Saturday, September 28th and 29th. All amateurs are invited to compete; and all lovers of the dahlia, whether amateur or

professional, are invited to be our guests and enjoy the display which every year has attracted large crowds. The dates have been planned to fall directly on the heels of the show of the American Dahlia Society in New York, as the trip to Short Hills is but half an hour, and many from out of town can avail themselves of the opportunity to see the two in one day.

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GARDENERS' CHRONICLE
286 Fifth Ave., New York

ORIGIN OF PRIMULINUS HYBRIDS

PERHAPS the most wonderful creations of recent years are the beautiful hybrids which have evolved from *gladiolus primulinus*. This remarkable species is found in a wild state in the region of the Victoria Falls, in Rhodesia. It was first discovered in 1887 by Mr. J. T. Last, in the Usagara Mountains, but for its later introduction into commerce Sir Francis Fox was chiefly responsible. It was in 1904 during the construction of the celebrated bridge across the gorge of the Zambesi that this *gladiolus* was rediscovered growing under the spray of the Victoria Falls. The flowers of this species are unique, and were destined to become the progenitors of some of the most remarkable hybrids ever seen. It very soon became popular, and some of the keenest hybridists, both in this country and abroad, quickly realized the possibilities of this African wildling. The charming hybrids which have resulted by crossing it with some of the finer forms of *Gandavensis* have an all-compelling beauty which it is difficult to exaggerate. They are graceful in habit and have all the vigor of the *Gandavensis* type, while the varying shades of yellow which predominate in this race have added a new interest to the *gladiolus* world.—*Horticulture*.

PLANNING THE FLOWER SHOW

VEGETABLE, fruit and flower shows are possible and successful because of the native characteristic in every normal person to enter into competition with his fellow-man, and the greatest good comes from such exhibitions, says the United States Department of Agriculture, only when knowledge and care have been exercised by those in charge of planning the exhibition so that all competitors will be assured of fair and equal treatment. It is often a lack of knowledge on the part of amateur promoters rather than a lack of sincerity that mars the show and makes it impossible for some conscientious competitor to enter the contest, or causes him to be disqualified.

Because of existing demand and an absence of printed information on the subject of show classifications, schedules, arrangement of entries, and other equipment, the Department of Agriculture has published Department Circular No. 62, "Horticultural Exhibitions and Garden Competitions," by M. L. Mulford, horticulturist in the bureau of plant industry, which is intended to furnish a complete and satisfactory guide to those who are contemplating flower shows or who will have the same problems to solve in regard to the coming season's fairs.

The object of horticultural shows and garden competitions is to arouse the interest of citizens and their families, lead them to take a greater interest in such matters, and to incite a deeper study of the best methods of plant growth. Early in the season it is advisable to outline the work for the coming year in order that all may be started on the right track for this year's entries. The circular can be had by application to the Department of Agriculture, Washington, D. C.

THE LONDONERS' GARDEN

A Sussex nurseryman once said: "The Londoners haven't any gardens; this is their garden." He was standing in the midst of the springtide beauty of the fortnightly flower show at the Horticultural Hall, Westminster. A soft breeze waved a patch of fairy-like pale violet primulas set among deep red tulips, shading to pink, and sheathed in the softest Spring green leaves.

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HAMMOND'S PAINT AND SLUG SHOT WORKS, BEACON, NEW YORK.

Hammond's Slug Shot
Grandfather used it for potato bugs. Father uses it. Mother uses it on her roses.
This year I am using it in my garden.

"HAMMOND'S SLUG SHOT"

Used from Ocean to Ocean

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices.

Sold by Seed Dealers and Merchants.



Wherever the eyes rested were signs of the "Spring o' the Year"—golden daffodils, wide-eyed violets, a glory of azaleas, and hyacinths of every hue.

But it was more than a flower show; it was, as the Sussex nurseryman had said, "a garden." People came not only to admire the beauty, but to study the growth of things. Those who had gardens in the country or even those who had only "back yards" in London, came to get ideas from the results obtained by the expert members of the Royal Horticultural Society.

Garden lovers from all over England and from many other countries were busy comparing this "Londoners' Garden" with their own. They met at the rock gardens, where all the beautiful little Alpine plants showed how the mild Winter had advanced them, and admired the blue of the aubretia on the gray rock with dark purple violas, like wild pansies, on a stone beneath.

Many felt the same about the pink violets. They smelled like violets, but, as one woman said, "One expects them to look 'violet'."

Nine new plants got the usual attention afforded to any novelty, but a keen gardener aptly explained their position in the show. "There's nothing very particular about them, but then they are new."

There were apples that had just been identified by experts of the society. One had been pronounced a new variety and had been given an award by reason of its good flavor and color. Its fortune then, as an apple, was made, for the recommendation of the society would carry it anywhere.

It is not only at the fortnightly show that problems are put to the society to solve. Every day the society is working to advance the knowledge of gardening for its members. Collectors constantly go to different parts of the world to find new plants. They send the seeds home to be grown at Wisley, where the society has large gardens. Girdling the whole earth is this brotherhood of gardeners for the 18,000 fellows are to be found in every corner of the world. *Christian Science Monitor*.

He sows June fields with clover, and the world

Broadcasts with little common kindnesses. The plain good souls he sends us, who fulfil Life's homely duties in the daily path With cheerful heart, ambitious of no more Than to supply the wants of friend and kin, Yet serve God's higher love to human hearts;

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Wonderful natural fertilizer for amateur or professional growers—unequaled for lawn, flowers, vegetables, fruits and shrubs—effectively sterilized—no weeds or chemicals—safe and dependable.

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The hidden fragrance of a kindly heart,
The simple beauty of a useful life,
That never dazzles, and that never tires.

SAMUEL LONGFELLOW.

STATEMENT OF THE OWNERSHIP, MAN-AGREEMENT, CIRCULATION, ETC., required by the Act of Congress of August 24, 1912, of "Gardeners' Chronicle of America," published monthly at New York, N. Y., for April 1, 1923.

State of New Jersey }
County of Union }

Before me, a notary public in and for the State and county aforesaid, personally appeared M. C. Ebel, who, having been duly sworn according to law, deposes and says that he is the editor of the "Gardeners' Chronicle of America" and that the following is to the best of his knowledge and belief a true statement of the ownership, management (and, if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, managing editor, and business manager are: Publisher, The Chronicle Press, Inc., 286 Fifth Ave., New York, N. Y. Editor, M. C. Ebel, 286 Fifth Ave., New York. Managing Editor, M. C. Ebel, 286 Fifth Ave., New York. Business Manager, D. Ebel, 286 Fifth Ave., New York.

2. That the owners are (give names and addresses of individual owners, or, if a corporation, give its name and the names and address of stockholders owning or holding 1 per cent, or more of the total amount of stock).

The Chronicle Press, Inc., 286 Fifth Ave., New York, N. Y. M. C. Ebel, Summit, N. J. M. E. Burniston and J. A. Burniston, both of Madison, N. J. S. Warendorff, 325 Fifth Ave., N. Y. Chas. H. Totty, Madison, N. J. A. Bauer, Deal, N. J. J. Barnett, Sewickley, Pa.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent, or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.) There are no bondholders, mortgagees or other security holders.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the owners, stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other persons, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities, than as so stated by him.

Sworn to and subscribed before me this 11th day of April, 1923

M. C. EBEL, Editor

[Seal] HERMAN F. BECK
(My commission expires March 8, 1925.)

ANNOUNCEMENT

A New Department Handling Insecticides

Our Department of Insecticides will provide for both the supplying of standard insecticides in large or small quantities to our customer and the expert advice of an entomologist as to treatment. J. K. Primm, who has been entomologist for the past seven years in government and state service, will be in charge of this Department.

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PLANT NAMES

AND THEIR MEANINGS is the title of a series of articles now appearing in The American Botanist where a multitude of other things of interest to the plant lover are also discussed. Quarterly, \$1.50 a year; specimen copy, 25 cents.

THE AMERICAN BOTANIST
Joliet, Ill.

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Box bushes, to prevent damage from this pest, should be treated in early May, as the adult flies begin to emerge from the foliage. Circulars on this pest and method of treatment mailed free upon application. Ninety per cent control possible.

1 gal. can, \$1.00; 5 gal. can, \$4.00; 15 gal., \$10.50.

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PENNSYLVANIA

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plant lice were alive after one dusting with AXFIXO on potatoes. This is the result obtained by the New Jersey Agricultural Experiment Station, last year. You, too, can have the same results if you follow the simple directions on the container.

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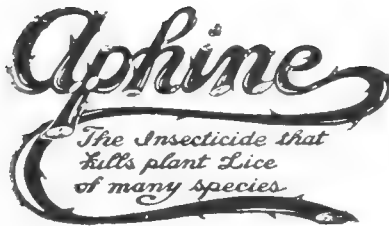
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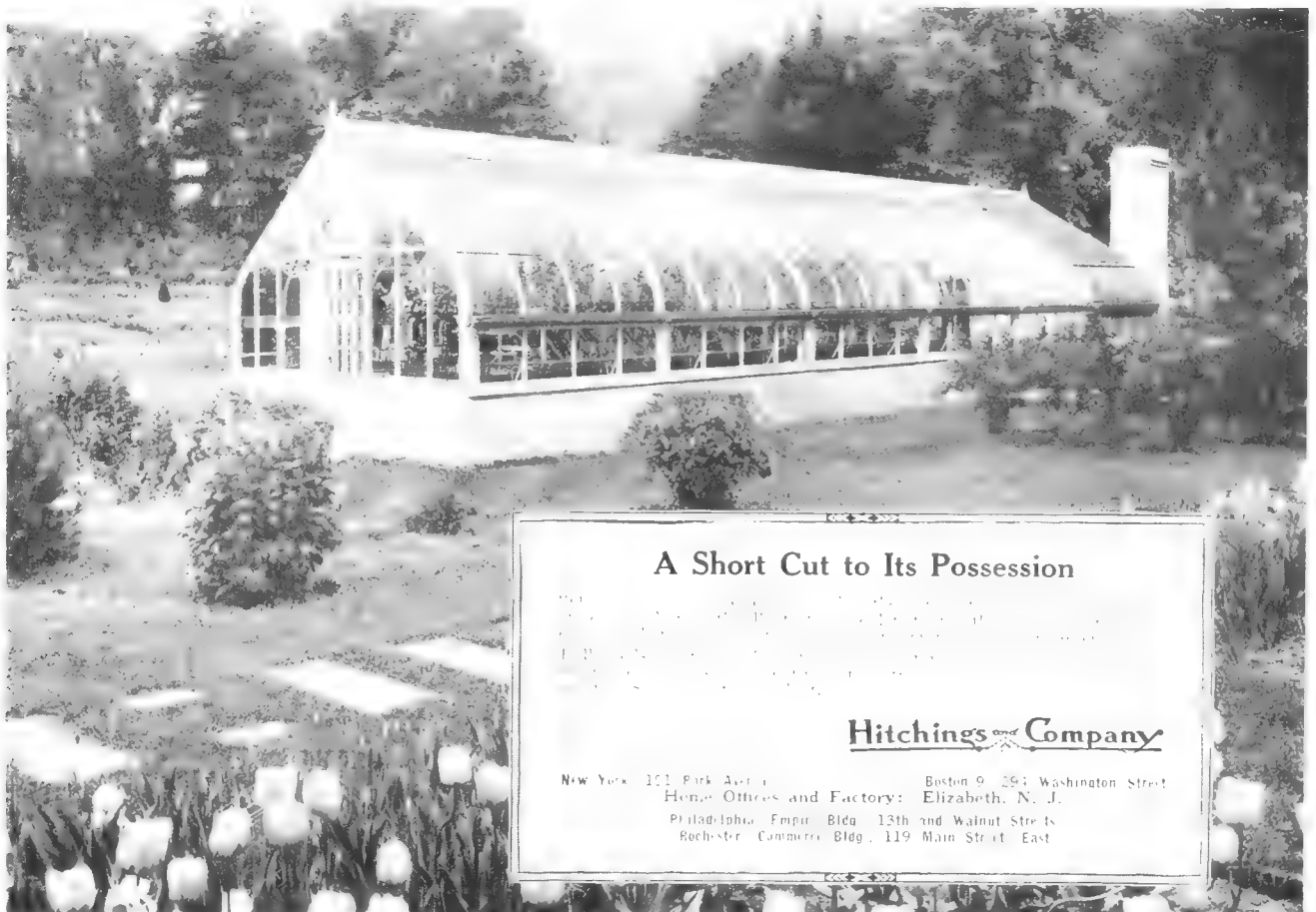
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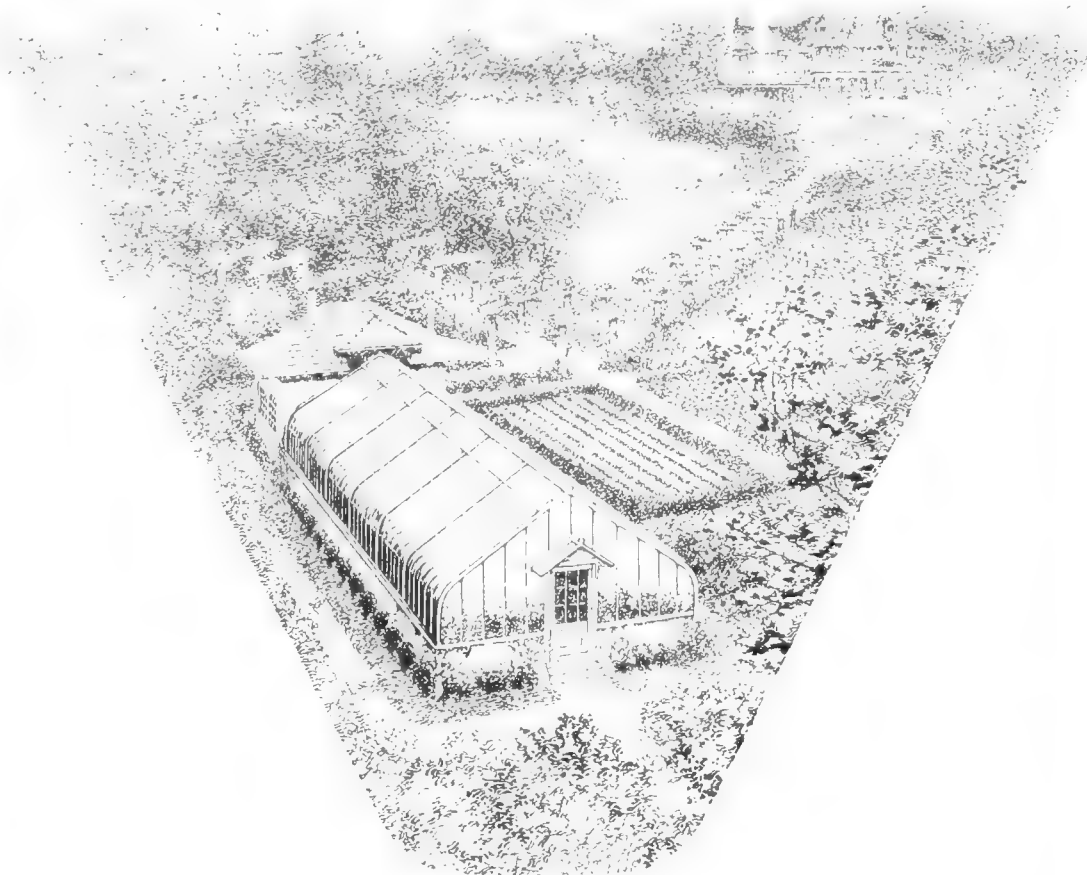
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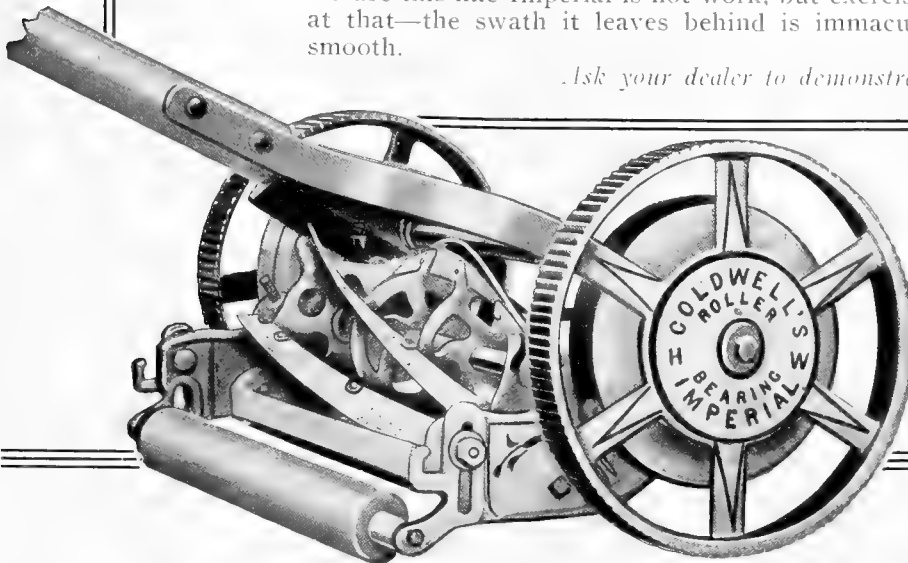
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

June, 1923

No. 6

Things and Thoughts of the Garden

WILLIAM N. CRAIG

HOW lovely is early June in the garden! Plants of all kinds have a freshness and beauty which is in a large measure lacking a month later, when the blistering rays of the sun have seared vegetation in spite of all artificial efforts to prevent it. There is a peculiar charm to be found in taking note day by day of the unfolding leaves on trees and shrubs. Many of these have now reached almost their full development, but for the past fortnight it has been a perfect delight to note the springtime beauty of delicate colorings in the unfolding of the leaves. There are not the same rich hues as in the Autumn when scarlets, crimsons, and golden yellows predominate, but the faint browns of the beaches, the delicate greens of the willows, the rich emerald of the horse chestnuts, the ruddy downy leaves of the oaks, the tender greens of the maples, the soft and graceful hues of the larches should appeal to everyone who is at all sensitive to the late springtime beauty of perfection in delicate colorings. One would fain wish for a prolongation of the season when so much is tender, beautiful and good but perhaps this is selfish, for all life must run its course and be finally gathered to its rest. This is, however, no season for narrowing thoughts, far too many garden enthusiasts keep their machinery of dislikes constantly oiled, while 'twould be vastly better if they utilized their powers of praise and appreciation more.

* * *

We have now a fine variety of hardy azaleas adaptable for garden uses, and the newer introductions from China and Japan with one or two home raised hybrids give us a wide range of forms and colorations. I am aware that botanically speaking there are really no azaleas at all, but while botanists may decree one thing the great army of garden lovers are unlikely to change over to rhododendrons, and will continue to think of the latter as broad leaved evergreens, and azaleas in the main as deciduous shrubs. In our colder states none of the evergreen azaleas are reliably hardy and but few of the rhododendrons. Our native azaleas contain some beautiful varieties such as *arborescens*, *canescens*, *calendulacea*, *viscosa*, *nudiflora*, and *Vaseyii*. I think *Vaseyii* is the queen of our native varieties if not of the entire hardy azalea family. It makes a most graceful shrub and the lovely shell pink flowers are of a color which the most fastidious cannot possibly object to.

A number of years ago I had occasion to make a good sized planting of *Vaseyii* on the shores of a large pond; amongst the azaleas, and running down to the water's edge, bulbs of *narcissus poeticus* were planted; also scat-

tered amongst them were clumps of that charming pure white Iris, sometimes called *Sibirica* Snow Queen, but more frequently and more correctly as *Orientalis* Snow Queen; dotted here and there were also some clumps of *Osmunda cinnamomea*. The azaleas and narcissi flower together and the charming soft pink flowers of the azaleas rising above the groundwork of white narcissi forms as lovely a combination as can be obtained. The white iris rather closely follows the narcissi, and the ferns and iris foliage makes a refreshing green right through the hot months. While all of our native azaleas are really woodland plants, they can be successfully cultivated in the open; but at least partial shade will prolong their blooming season and in such a location the flowers will show up much better.

* * *

Of the evergreen azaleas the Japanese *Kämpferi* is undoubtedly the best; in the latitude of Boston this is really deciduous but proves very hardy and never fails to give an abundant display of flowers each year. It succeeds quite well in full sunshine, but shows up to the best advantage with a background of hemlocks or other tall growing evergreens. While this azalea will withstand temperatures as low as 15 to 20 degrees below zero without any injury, the flower buds when expanding are very easily injured, and this season several growers lost all their upper buds when the thermometer dropped just a shade below the freezing point. The old *A. amœna* in favorable locations will winter a little north of Boston and maintain its foliage, as will its varieties, *Hinomanyo*, *Fujimanyo* and *Hinodigiri*. *A. ledifolia* and its pretty lavender colored form, *Yodogawa*, and *A. indica alba* are seen in quite good condition occasionally. The last named cannot be classed as dependable although succeeding very well two hundred miles to the south of us.

* * *

Too many people are still obsessed with the idea that azaleas can only be successfully planted in Spring when, as a matter of fact, they do much better planted in Fall. The Arnold Arboretum which grows azaleas very extensively and plants them with the best possible taste, has made quite extended experiments to ascertain which is really the best planting season for these popular flowering shrubs. Last year thousands were planted out in Fall, many of them just before the ground froze and they came through in splendid condition, even Professor C. S. Sargent, the venerable and esteemed director of that institution, who has always been more or less prejudiced against the Fall planting of trees and shrubs, has seen enough to

convince him that nursery stock of azaleas planted in the Fall succeeds a great deal better than when Spring planted. The Arnold Arboretum, by the way, when it has completed its azalea plantings, will have set out no less than 300,000 of them which should surely present a glorious showing in their season.

The fact that azaleas do so much better when planted in the Fall should help to kill some of the existing prejudices against Fall planting. Over thirty years' experience in boreal New England has clearly proved that with a few exceptions deciduous shrubs do better planted in Fall than Spring; that rhododendrons transplant very successfully in August; that hardy roses planted about November 1 will easily beat those planted in April or May; that apples, pears, plums, cherries, gooseberries, currants and even raspberries amongst fruits are much better planted in Fall; that nearly all hardy herbaceous perennials succeed far better planted in Fall than Spring; and many evergreens, if carefully planted and properly cared for, will give just as good results if moved during August and September as in late April and May. Nurserymen are simply overwhelmed each Spring and have but little Fall business. There would seem to be no solid reason why these conditions should continue. He or she who buys fruit trees or deciduous shrubs in Spring usually gets stock which has been dug the previous Fall, and has been carried over Winter in storage houses, often the roots are none too damp, and many plants on receipt will present a more or less shrivelled appearance, in no sense can it be compared with stock dug in the open. The growers of nursery stock would much appreciate a longer shipping season and they can only get it when people awake to the fact that Spring is not the only planting season, and that if they would but buy more in the Fall, they would secure better stock and have it delivered much more promptly. Why not plan to relieve the Spring pressure by doing some planting the coming Fall?

* * *

The hybrid rhododendrons are now in their full glory. The past Winter while prolonged was not especially severe and plants almost without exception came through in excellent condition. We hear much about the Winter killing of these showy plants. I am of the opinion that the main reasons why so many plants look miserable in Spring are not so much low temperatures as a deficiency of moisture at the roots, excessive Winter protection overhead, and exposure to biting winds. Young plantings in our colder latitudes need a little protection the first two years until established, afterwards they are much better without it. The removal of coverings of evergreen branches or burlap is invariably carried out when we have one of our premature bursts of heat in March, and the sudden exposure to hot sun, and later biting frosty winds is in reality the cause of the "burnings" of the foliage so much in evidence each season. If these broad-leaved evergreens go into the Winter with dry feet and the ground remains hermetically sealed for weeks, or maybe months, they cannot be expected to come through the Winter well. There is one other menace to successful rhododendron culture in the lace wing fly which is responsible for the deaths of thousands of plants, and the disfiguring of many more. This pest is very destructive to rhododendrons and kalmias growing in full sunshine, but rarely troubles those in the shade. It can be readily controlled by using a good nicotine spray with some soap added. Aphine and other proprietary remedies prove effective; care must be taken to use a fine misty spray nozzle and to direct the spray upwards as the pests work below the leaves and must be hit and suffocated by contact.

The prices of rhododendrons have advanced enormously since the passage of Quarantine 37, but our native varieties like maximum, catawbiense, and carolinianum are still obtainable at reasonable rates. Catawbiense is the parent of our many beautiful hardy hybrids. There is a tendency on the part of landscape men to overplant maximum, commonly known as "the Great White Laurel." It has the advantage of being a late bloomer; the trusses are, however, small compared with those of the hybrids, and I do not consider it in any way comparable with *Kalmia latifolia*, our common "Mountain Laurel," in beauty. Of the hardy hybrids of catawbiense the following have proven very reliable in the vicinity of Boston where rhododendrons have been much planted. *Album elegans*, blush white, a splendid variety; *delicatissima*, white suffused with pink, the finest light colored sort we have, flowers moderately late; *roseum elegans*, rosy pink; *Charles Dickens*, scarlet; *Everestianum*, rosy lilac, sometimes called lavender; *Caractacus*, a reliable purple crimson variety; *album grandiflorum*, a robust sort similar to *album elegans* in color; *atrosanguinea*, dark scarlet; *Boule de Nieve*, of dwarf habit, pure white in color and an early bloomer, good for the front of beds; *C. S. Sargent*, an excellent crimson; *Kettledrum*, deep red; *Mrs. C. S. Sargent*, a lovely pink, and *purpureum grandiflorum*, purple. A number of other varieties have proven hardy but those named give a fine range of colors and should naturally succeed better in sections somewhat less severe than here. If broken from the morning sun, kept well mulched all the time with leaves, and moist at the root, there is no reason why rhododendrons should not succeed well. The one time idea that peat was needed for their successful culture has been long ago exploded, having been abundantly proved that they will thrive just as well in loam. Like other members of the natural order Ericaceae, they cannot be grown in soils containing lime, but scientists are now telling us that it is possible to treat such soils and make them grow rhododendrons and allied plants successfully.

* * *

I have been very much interested in the movement started recently, to collect a fund, the interest of which will be utilized to perpetuate the memory of Jackson Thornton Dawson for over forty years superintendent and propagator of the Arnold Arboretum, the greatest Mecca of living trees and shrubs on the American continent. It is proposed to use the interest from the invested funds for suitable medals or prizes to be offered through the Massachusetts Horticultural Society annually. Probably there has been no more unique figure in the last half century than that of Mr. Dawson, who gave practically the whole of a long and very busy life to the propagation, hybridization, and culture of hardy trees and shrubs. As a propagator he was so successful as to be almost uncanny, and during his lifetime he raised plants simply by the millions which were sent to nearly all quarters of the globe. To the present generation of tree lovers, the genial face and warm hand clasp of Jackson Dawson is very familiar, but it is fitting that a movement of this kind should have been started to keep in fragrant memory one who labored so long and unselfishly for the advancement of American arboriculture. The treasurer of the Jackson Dawson Memorial Fund is Thomas Roland, Nahant, Mass., and E. H. Wilson, assistant director of the Arnold Arboretum and noted plant collector, is acting as chairman of the committee.

* * *

In reading the reports of the late Ghent Quinquennial Exhibition held at Ghent, Belgium, last April, an exhibi-

(Continued on page 154)

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

THIS month, late June, and early July, is probably the showiest part of the whole year for the herbaceous borders. Delphiniums will be in all their glory, and I doubt very much if in any part of the year we have a better garden plant. They are general favorites with everybody and of late years we have wonderful shades of color among them. Another thing in their favor is that they can be used with great advantage with several other colors, and at this season of the year delightful pictures of the various groupings may be made. *Campanula medium* in its several colors flowers at the same time and blends well with Delphiniums. A few clumps of the yellow *Hemerocallis* (Day Lily) scattered along the border also fit in well in the picture, and, of course, *Lilium candidum* and *regale*, also *Oenothera* (Evening primrose); *Polemonium coeruleum* (Jacob's ladder); *Lupinus polyphyllus* in its several colors; *Campanula persicifolia*, blue and white; and *Viola cornuta atropurpurea*.

A good background of green is necessary to get the full beauty of the various colors, and after all I think a wall built in a sinuous line covered with *Euonymus radicans* is about as good as anything. Behind the wall, trees of a drooping habit may be grown, which, when hanging slightly over the wall, will break the stiff outline somewhat. The plants in the border will need to be kept in position by stakes to avoid breaking down the taller plants by rains and high winds. This requires some experience, and a good eye to preserve the natural appearance of the plants.

The borders require frequent cultivating to loosen up the soil, and should be kept well supplied with water while the plants are flowering. If a succession of flowers is desired all through the Summer, plans should be in mind as to what to fill in with as the other plants go out of flower. Delphiniums, as soon as the flowers pass, should be immediately cut down to the ground, and a little fertilizer worked in around each plant. In this way a second crop of good flowers may be had later on. The flowering season of *Campanula medium* may also be prolonged by picking off the seed bags, as soon as the individual flower passes. All these details require time and labor; but it certainly is worth it in the better appearance of the borders.

Planting out in the beds in the more formal gardens will now all be finished. Keeping the beds neat and clean will, from now on, be routine work. A formal garden never looks well even if the colors are all properly blended, if kept in a slipshod condition. Geraniums should be watered well when set out, and it will indeed be an exceptionally dry Summer if they need any more. By keeping the water away from them, they have a much shorter and firmer growth, and the result is they flower much better. Cannas, on the other hand, require abundance of water, but care should be taken that it is done under the flower stems, as the flowers are very easily injured. Coleus in beds in the formal garden need frequent pinchings to keep them in shape.

Have all the dahlias planted around June 20. They seem to grow well in coal ashes. Divide the clumps to a single eye and cover with a shovelful or two of coal ashes. Pinch them once when about a foot high and apply plant food when they set bud. If given when planted they seem more eager to grow than flower. Dahlias need spraying once or twice to keep insects in check.

This is a good time of the year to increase stock of *Phlox subulata*, pink and white; *Phlox divaricata* with its lovely blue flowers; *Iberis semperflorens*, *Aubretia deltoidea grandiflora*; *Arabis alpina*, *Alyssum saxatile compactum*. There are many places where plants of low growing habit are very useful and pretty in the Spring, and these are all useful in the various positions where such plants are required.

The rhododendrons would be greatly benefited by the removal of all the seed pods if one has the time, but if one has a large plantation of them it is an endless job.

Outdoor roses will now be coming in flower. They require a great deal of watching for the various insects that they are subject to. If a continuous supply of flowers is expected, they must be fed well and given plenty of water. There are now many fine varieties of hybrid teas, but the old hybrid perpetuals have their place and are much more hardy.

Give sweet peas plenty of water, and occasional waterings with liquid manure. Keep the flowers closely picked and look out for green fly. Near the seashore a much longer flowering season may be enjoyed than inland.

Any annuals that have been sown where they are to be grown will need thinning out. If this is not attended to, poor flowers will be the result. Careful weeding is necessary while the plants are small, as they are easily disturbed at the roots. Any plants which are to be moved are better if marked while they are in flower, as one is better able to remember the color of the flowers when placing them in a new position.

If pruning of the later flowering shrubs is needful, do it immediately after they pass out of flower, as if it is deferred until late in the season, no flowers will be seen next year.

Greenfly will be bothersome on some plants and will need dusting or spraying to keep them in check. We find that Imp soap or some of the tobacco solutions does the work, and they are not too expensive.

As soon as one has abundance of peas, it is better to stop cutting the asparagus bed. Give a thorough cleaning and frequent applications of plant food while it is making growth. This builds up good strong crowns for another season. The earlier peas will now be bearing and should have plenty of water. The successional crops as they come in flower are all the better to have a little stimulation with some fertilizer, being given a thorough watering when an application is made. Keep up successional crops of peas. Although in many locations they do not bear well during the hot weather, yet an occasional dish is appreciated by the family.

Celery is an excellent crop to plant after peas. It requires abundance of water while growing, and is better if sprayed with Bordeaux frequently for fungous diseases. On the whole, I think celery is better if planted on the level ground rather than in trenches. It gets a more free circulation of air during the hot weather.

Late cabbage and cauliflower may now be planted out. Secure a nice rich, deep piece of land, on which they have not been grown for some years. Melons, cucumbers, squash, egg plants, are also benefited by spraying with Bordeaux, as they also are liable to attacks of fungous diseases. Don't wait until the plants are affected, as spraying is only a preventative.

Keep up a successive planting of corn well into July. Even if one does get caught with early frosts occasionally, it is worth the risk.

Rutabaga turnips may be sown in July. Blanched tops of this root are enjoyed by some during the Winter and quite a number can be used for supplying the same. Sow more lettuce and endive for succession. These need tying up to secure nice blanched hearts. I mean the Romaine or cos type of lettuce.

Keep the tomatoes tied up. Sometimes egg plants and peppers are also better if given some support. A little nitrate of soda helps the tomatoes after they have started to bear fruit. Onions also appreciate extra plant food, as do parsnips, leeks, etc. By frequent watering in dry weather the soil soon gets exhausted, which will show on the crops if extra plant-food is not given.

Cultivate the potatoes well and keep them sprayed with arsenate of lead, so that the potato bug will be checked before any damage is done.

When the fruit is all picked from the strawberries look out for the strong runners. See that they are layered well to secure good roots as early as possible for transplanting.

The currant bushes also need attention after the fruit is picked. Cut out the old woody shoots so that the young wood will have a chance. This also applies to gooseberries.

Outdoor grapes thrive better if a few leaves are stopped ahead of the bunch. Any loose shoots should be tied in.

Apples need to be watched for any outbreak of late hatching caterpillars, and sprayed to prevent damage to the foliage. The fruit is all the better to be thinned out, removing the unshapely and poorer fruits, and if any part of the tree appears to be too crowded with branches, it may be thinned out. This is more easily seen when the foliage is fully grown than when leafless in Winter. The wound also heals over more quickly.

Peaches should have some of the poorer fruits removed, saving all the good ones that turn towards the sun. The peach borer is the worst enemy of the peach. It may now be controlled by using Para-dichlorobenzene. The trees, however, must be over four years old before they are practiced on, but it is said to do damage to apple trees, so that it is better to be careful and take no chances.

IN THE GREENHOUSE

With all the beauty of outdoor borders at this season, let us not forget the greenhouse, as the foundation of many of our next Winter's flowers is laid at this time. Young roses should be planted by the last week in June. The benches are better if emptied a day or two to give them a good, thorough cleaning. There is nothing better than a good painting on the inside of the bench with hot lime, which is an excellent disinfectant and makes a sweet foundation for the new compost. The compost should be a good, rich, strong loam. If a little clay is in it, so much the better. Plant the young plants firmly and place the wires in position so that a tie or two may be given. They need syringing every bright day, but all foliage must be dry before night. On carried-over plants, we dry them off just sufficient to clear out a good deal of the old soil, right down to the bottom boards. Cut them down to a foot above the bench. I am not a believer in drying carried-over plants severely before pruning back, for in my experience they are harder to start—root action being destroyed a good deal by severe drying. Our plants have their foliage quite green when they are cut down. From my observation they start much stronger eyes. We have carried the same plants for seven years, and had as many flowers the last year as the first. It all depends on the treatment they are given.

Young Carnations do better if benched as early as possible, especially if good length of stem is expected in the Fall. They are more easily controlled as regards insect pests indoors. It stands to reason also that when they are

lifted in the field, after they attain considerable size, their root action receives a severe check, which takes some time to overcome. The result is short-stemmed flowers for a first crop in the Fall. Give all the air possible in the carnation house, also moisten the floors and under the benches during the hotter part of the day. Let the plants get a little on the dry side before watering, and then give the plants a thorough syringing, making sure that there is plenty of time for them to dry off before night.

Keep a sharp look out that young begonias do not get too well rooted in the small pots. Move them along, and keep them growing, if plants of fair size are desired. Good fibrous loam, flaky leaves, preferably oak, and decayed cow manure in equal parts, adding a fair sprinkling of charcoal, is what they like to grow in. Keep them well up to the glass, and have the house in a good moist condition, never letting the plants get dry. There are no more handsome plants than well grown specimens of the tuberous rooted *Socotrana* hybrids.

A batch of poinsettia cuttings should now be rooted. Pot each cutting in a mixture of finely sifted sphagnum moss and sand, adding a little finely powdered charcoal. Set them in a tight case, and water every bright day, until they show signs of rooting. Air the case out for a few minutes, two or three times a day, and you will hardly ever lose a cutting.

Euphorbia Jacquiniaeflora is one of the showiest and most useful plants that flower around Christmas, and later. They are easily rooted if not over-watered. We have had good success by placing them in small pans in sand, and watering them well. Then we set them on a shelf near the glass in a warm close house. Do not give them any more water until the sand gets quite dry. By this method, they will root in a month to six weeks.

Don't neglect the *Hippeastrums* or *Amaryllis* plants. Feed them well, and get a good strong growth by placing them on a light bench until their growth is complete, or the chances are that you will not get them to flower well next Winter.

Select a cool shady position for the young *calceolarias*, *cinerarias* and *primulas* during the hot weather. A frame on the north side of a building or wall, if one has not a greenhouse facing north, is the best place for them until Fall.

Antirrhinums intended for flowering next Winter should now be ready for potting off. It is better not to pinch them until they show a flower bud. They then break strong from the base of the plant, furnishing later on those strong stemmed spikes of flowers which we all delight to see.

If the greenhouses are crowded, cool hardwood plants may be plunged in ashes outdoors. They should be gone over several times a day, to make sure that they do not suffer for want of water. Syringing on all bright days is also essential for them. When growing well, feeding is also in order, until they set their flower buds. Weak cow manure water and Clay's fertilizer, we find agree with them, and after they have set bud, soot water gives added lustre to foliage and flowers, and does not excite the plants into growth.

Nerines will now have finished their growth, and to make them flower well they need a thorough baking in the sun. We find that the nearer the glass they are, the better they will flower after they are ripened.

Palms will require plenty of plant-food, especially if they have not been potted recently. Give all ferns plenty of room to develop their foliage, and have a free circulation of air through them. This is necessary, especially for *Adiantums*, and other fine foliaged species. If they are crowded, they are apt to get brown in the centre. Avoid too heavy a shade over them, just enough to break the

strong rays of sunshine. They will grow much hardier and will last better when the time arrives to use them.

Eucharis Amazonica, which show signs of having completed a set of leaves, may be dried off somewhat, and as soon as they indicate the least desire to throw up a flower stem, water and feed them well. To flower well, they like to be considerably root-bound.

Many of the *Cattleyas* are now growing vigorously, and need plenty of air and moisture. Be sure that they are not over-shaded. This is especially true of the *Gigas* section, which will not flower unless they get all the light possible. The earlier *Calanthes* are rooting freely, and may now receive weekly applications of manure water. They grow best close to the glass, in a warm, humid atmosphere. *Dendrobiums* also, when making their growth, like plenty of heat and moisture, but should only be lightly shaded. *Miltonia vexillaria* will be passing out of flower, and should not be over-watered, until the new growths begin to emit roots. A sharp lookout for insect pests on all the orchids at this time of the year is necessary, as under warm humid conditions they breed fast.

Early fruit will now be ripe, and all the air possible is necessary. When pot fruit has been harvested, plunge them outdoor in ashes, and syringe and feed them well. After the crop has been picked on peaches and nectarines indoors, give them a thorough watering and syringing, and thin out any overcrowded parts of the tree. The late grapes will be past setting their fruit, and thinning will be the order. Don't be afraid to give the berries plenty of room. Be sure and not over-crop, twenty-five pounds to a rod of say twenty-five feet in length is safe, if in a healthy condition. A good application of Clay's fertilizer after they are thinned, will help considerably. Loosen the soil on the surface of the border and give abundance of water.

SWEET-SCENTED GARDENS

LIGHT and shade, good form and pure color, are desirable in the garden, but, though less evident, the best of leafy and flowering plants that possess a sweet or graceful perfume are also enjoyable. Evergreen shrubs, like Sweet Bay, Lavender, Myrtle, and Rosemary are valuable for sheltering hedges, or for sheltered nooks and corners near the house, especially so in mild and sunny localities near the sea. Of all seaside shrubs in flower none, perhaps, surpass the *Laurustinus*, as now covered with its clusters of snowy blossoms. There are three or four varieties of *Laurustinus*, all beautiful and free blossoming, but perhaps the one with glossy leaves is the most beautiful when seen in flower. The plant is an evergreen also, which is another advantage, and the perfume of its flowers is fresh and healthful. Every garden, even a road-side cottage garden, may boast of its sweet-scented *Mezereon* bush, its Rosemary, Lavender, Roses, Sweet Briar, Pinks, and Carnations, with its Violets and Pansies beside the Box-edged path or on each side of the door.

It is true we cannot boast of our Lemon and Orange groves, but our climate is still kind to many fragrant things—to Honeysuckle, Virgin's Bower, Jasmine, Sweet Verbena (*Aloysia*), Magnolia, and to Cherries, Plums, and Hawthorn. In bed and border alike we may grow hosts of beautiful and fragrant things—Woodruff, Pinks, Balm, Musk, Violets, Rockets, Primroses, Wallflowers, Carnations, Stocks, Sweet Pea, Mignonette, and many other plants that "distill sweet odors on the evening air." We have known outside Vine borders coated with fresh earth and manure every year, and then carpeted with Mignonette and Night-scented Tobacco, give delightful results. In one place we know the narrow borders be-

neath the windows of the house are sown every Spring with Mignonette and Night-scented Stocks, which fill all the lower rooms with fragrance if a window is opened. On another large house every spare inch of wall below the bedrooms is trellised for Magnolias, Tea Roses, Jasmine, Honeysuckle, *Chimonanthus*, and the Sweet Clematis, or Virgin's Bower, and from June to October Heliotropes, Violas, Verbenas, and scented Cape Pelargoniums are planted in the flower beds below.

When we consider our glass-roofed gardens and plant houses, there is practically no limit to the sweet things, both leafing and flowering, that we can grow. The scented Pelargoniums and many beautiful plants and bulbs bring us the perfume of the Cape or the desert to our doors. Orchids of all kinds, odorous, from the tropics and mountains of both east and west, the Gardenia and Tuberose, the *Eucharis* Lily, and tropical flowers of a hundred kinds exhale their perfume for us, even in our most smoky towns. Of fragrant flowering and foliaged plants we can never have too many in our gardens and glasshouses. It is something to remember that even a cottager may possess a sweet-scented garden around his door, and that no flowers are sweeter, however more rare and expensive to obtain or to grow, than are the wild Violets, Roses, and Lily-of-the-Valley of our own hedges and woods.—*Gardening*.

CONSTRUCTING A FLOWER SHOW GARDEN

FEW visitors on entering a flower show and beholding the wonderful sight that greets them, which is created by the classes for large garden exhibits, have but a slight conception of the amount of work, responsibilities, and heart-aches which are entailed in the planning and construction of these gardens.

First comes the forethought of the exhibitor who must outline in his mind the style of garden he desires to create: after which he secures the services of the architect to prepare the plans and specifications, which are in turn handed over to the mechanics to build the understructure. The foundations of these gardens are not all soil, but often have concealed intricate mechanical contrivances to produce some artistic effect. Note the accompanying illustration of the "underground" construction of the John Scheeper's, Inc., bulb garden at the International Flower Show last Spring, showing the frame work for the rows, plots and garden paths ready for their plant inhabitants. The plants are not merely stuck in as so many artificial things but are treated as living plants must be to survive the period the garden is to be exhibited.

The construction work provided for, thought turns to the necessary plant materials, and after it is liberally estimated how many of the different varieties are required, preparation is made for their forcing, not overlooking the grass for the plots and paths, nearly all of which is accomplished under glass, and the arrangements for which must be made many months in advance of the show.

When the time for the flower show approaches, construction and planting material and all necessary accessories are gathered in the exhibition hall within forty-eight hours of its opening and mechanics and gardeners begin work and continue uninterruptedly until the garden is completed. When the opening hour arrives, a tired but happy group of artisans are found enjoying the fruits of their efforts, while there is not the least evidence to indicate to the visitor the confusion, excitement, and rush of the last hours to bring the gardens to the perfection in which they find them and to whom they appear just as natural as long established outdoor gardens.

In the garden exhibit here described which covered eighteen hundred square feet of space, there were used

(Continued on page 156)

*R. Wichuraiana*

Single Roses in English Gardens

ARTHUR T. JOHNSON, F. R. H. S.

RECENT Summers have marked at least one notable change in our English gardens. I refer to the great increase that has taken place in the popularity of the single rose. Some of us had always loved the wild rose, but it was not until a comparatively few years ago that we began seriously to cultivate it, not only by hybridizing but by rescuing some of our fine old standard kinds from oblivion and by introducing new species. America gave us an inspiring encouragement in this direction; Lord Penzance demonstrated the wonderful beauty and adaptability for hybridizing of our wild Briar and then came the glorious *R. moyesii* and the scarcely less lovely *R. hugonis*. These seemed to give the final stimulus to the cult of the single bush rose which is gaining ground with every recurring season.

The peculiar attributes of the single rose, its natural untamed elegance and freedom of growth, together with its comparatively short blossoming season, may not always commend it for use in the formal rosary. But it is often just those very attributes which render it so charming a subject for the semi-wild garden, the border, shrubbery, woodland and many other such places wherein it is without a peer. Moreover, these roses, or most of them, do not demand the careful cultivation of the decorative, or bedding, varieties. They will do almost anywhere, seldom need pruning and, being the real "Roses of June"—the "Month of Roses"—they are the first to herald the advent of Summer.

The earliest of them to bloom in my own garden are *R. lucida*, just mentioned, with its tall, arching growths wreathed with a multitude of sulphur-yellow blooms, and the brilliant Carmine Pillar. The flowers on this latter are 3 to 4 inches across and of an intense carmine with a white base to the petals. Though nominally a climber, this old variety will do as a bush and is admirable for hanging over a bank. Another early one is the new Glowworm, a very fragrant single in a flaming orange-scarlet which at once suggests a relationship with what is perhaps the most gorgeous single rose in existence, the Austrian Copper. This is a form of *R. lutea*, whose flowers are like goblets of old gold. The Penzance Briars owe much of their beauty to this rare old Eastern species and the well-known double, *Soleil d'Or*, has also borrowed its fine color from the same source.

The *Wichuraiana* singles naturally come under another class, one in which American hybridists have done wonders, but I must reluctantly pass these by with the mention of one and that is *R. Wichuraiana* itself. This delightful little single white is not perhaps as showy as many, but it is one whose creeping habit and fresh evergreen foliage make it so useful as a carpet for rough

banks, for covering the ground at the margins of shrubberies or associating with Heaths and other subjects.

Our native Sweet Briar (*R. rubiginosa*), often more appreciated in American gardens than with us, must always rank high among the wild roses. The best forms are almost as bright in color as American Pillar and, in addition to this and the deliciously scented foliage, the scarlet hips are very attractive. *R. villosus* comes near to the above, but it is of rather shorter stature and the leafage has a greyish tint. *R. arvensis*, in ivory-white, of our woods is one of the few species which does well in shade and it is the wild parent of the well-known Ayrshire roses and others.

R. lucida is a typical bush rose of about 4 feet in height with handsome, glossy leafage which assumes fine autumnal tints. The blooms of *R. lucida* are some 3 to 4 inches across. They open flat and are of a cool silver-pink. Another delightful species, also deciduous, is *R. alpina* whose branches are perfectly smooth, bearing no thorns. The emerald foliage of this bush is adorned with bright rosy-red flowers in early Summer. *R. Pyrenaica*, dwarf and with prickly branches, is a form of the above and this makes a good companion for the charming little *R. nitida* and *R. berberifolia Hardyii* whose yellow flowers have a crimson blotch at the base of each petal like a Cistus. This needs a warm, sunny place, as also does that curious and pretty garden form of the same species, Hebe's Lip, whose creamy-white flowers have a Picotee-edge of red.

We grow the Burnet rose largely on dry banks of porous soil where few subjects do well and some of the Californian species also prosper in such conditions. The former is of course *R. spinosissima*, a native of our sandy wastes and parent of the Scotch Briars. Some of the creamy-white and yellow forms of this species are exquisite little shrubs, very hardy and content, and there are a few choice kinds in pink, one of which is the bronzy-foliaged, very dwarf, William III.

R. macrophylla is a fine, hearty species allied to the Ramanas (*Rugosas*). Like the latter the foliage is handsome, the blossoms very large and followed by conspicuous fruits which remain on the bushes well into the Winter. Of Chinese introduction, however, *R. moyesii* must claim premier place. This makes a vigorous, thin-habited, sturdy bush of some 6 to 7 feet in height, and soon after the pale emerald foliage has appeared the gorgeous flowers unfold. In color these are a deep and velvety blood crimson with a bold mass of stamens in a rich yellow, the petals are of remarkable texture and these flowers, pro-

The illustrations are through the courtesy of Bobbink & Atkins, in whose catalog many of the varieties named are listed.

duced singly, are followed by extremely handsome bottle-shaped fruits.

Though naturally a climber the Musk Rose (*R. moschata*) will, if given space, grow into a large mound with splendid effect. The enormous trusses of blossom borne by this Himalayan Briar are white and they emit a powerful musk-like odor after rain. This is also known as *R. Brunonis*. Another rampant grower, which will also make a huge mass of gracefully arched branches, is *R. polyantha*, of which there are many forms among the climbers. Yet another rose species to which we owe much—perhaps more than any other, in the creation of



R. Lucida

decorative garden roses—is *R. indica*. There are some very lovely varieties of this, one of which bears the name of Miss Lowe, and whose flowers are vivid rose-crimson, being one of the best. Unlike most rose species *R. indica* will blossom at intervals the season through.

If a little tender the milk-white, highly scented, *R. bracteata*, with very large, cup-shaped blooms, is an excellent species. It may at once be distinguished by the size of its bracts which almost surround the orange-red, silky fruits. *R. sericea*, very unique in the possession of its four-petaled blossoms, shaped like a Maltese cross, always strikes an unusual note in the garden, as does that curious form of the same species, *R. pteracantha*, with the fierce, blood-red spines which give the branches a winged appearance.

Among the newer singles of garden origin there are some remarkably lovely varieties and roses of this class, as I have inferred, are becoming increasingly prominent as a feature at all our great shows. One of the finest of these is Ethel James, a strong bushy grower with pure white, fragrant blooms. This novelty might be described as a refined Isobel, and those who know the latter will understand what that means. Mrs. Oakley Fisher is a single in a rich orange-yellow, somewhat after the style of Lady Hillingdon, a good and shapely grower in bush form. Golden Emblem, a magnificent yellow with immense blossoms, has recently attracted much attention, and as much may be said of The Queen Alexandra rose, an intense scarlet-vermilion with a buff reverse to the petals which suggests a single Juliet, doubtless owing to a common parentage in the Austrian Briar. Princess Mary has very big flowers which open flat, a brilliant crimson-scarlet, and close rivals of this splendid variety are the wonderful Red Letter Day and K. of K.

So one might continue, and though I have not touched the fringe of a vast subject, enough has been said, I hope, to indicate the drift of our fashion in the modern rose.

Nor is this a mere passing fancy. This type of rose has come to stay. Even our National Rose Society, most conservative of institutions, has at last been forced into a more generous recognition of the single flower. Indeed, the time is not far distant when those responsible for what one may call organized rose culture must accord the wild and other single roses a welcome not less hearty than that already accorded the doubles. It is a question of either doing that or ceasing to be representative of the best and truest side of modern rose growing.

BURNING OF EVERGREENS

EVERGREENS burn much worse some seasons than others. It is not so much the cold that causes this as the increasingly powerful rays of the sun in Spring. Evergreens are unlike deciduous plants; the latter do not mind a period of partial dryness at the roots in Winter, as they are in a dormant condition and have no leaves demanding moisture.

The writer has seen thousands of arbor-vitæ and



R. Hugonis

junipers dead in Spring in the fields where they grow wild, following a Winter which started with the soil dry and when the soil remained frozen for months. The same holds true of nursery stock.

Evergreens must have moisture for their foliage all the time. If it were possible to soak every evergreen just before Winter set in, we could rest assured that the mortality rate would be enormously decreased. This is especially true of evergreens which have not been planted long. Bitterly cold winds will cause some burning, but rarely death if the ground is moist. The planting of windbreaks of spruce, pine or other robust evergreens in nurseries protects plants much and greatly reduces scorching. Windbreaks and moisture would entirely eliminate burning of all but the more tender varieties. If the ground is dry in late Fall, make a ring around as many plants as possible and soak them; push back the dry earth after the water has passed out of the basin. This takes time, but may save thousands of dollars' worth of evergreens in Spring.—*Florist's Review*.

Growing Roses Under Glass*

THE essential requirements for the successful cultivation of roses under glass are good houses, good soil properly fertilized and good plants intelligently treated.

The subject of loam is important, and yet this has often been given too much consideration, while other things, such as water, air, sunlight, bacteria, moisture, temperature and other factors and conditions have been neglected.

I have seen roses growing on a greenhouse bench in two inches of loam that produced flowers which took a first prize in a national rose show in this country. I have grown roses indoors for nearly forty years and have never yet had a rose soil, so called, to work with. This is true of many growers, and yet they produce plenty of good flowers and plants. The important thing is to know how to use the soil at your command so as to get the best results from it.

The best soil is a peat medium, which carries the bacteria, mixed with heavy loam and dry, pulverized, yellow clay. When you have selected the spot from which you wish to use the loam, it should be plowed, in the Summer or Fall before wanted, if possible. Then, if the soil is inclined to be sour, it should be limed and then harrowed. Use hydrated lime for this purpose and not carbonate. Carbonate of lime or limestone gives off fresh carbon dioxide too quickly and is likely to kill some of the bacteria in the peat. Afterwards you can cart on the manure, and, last of all, add the bone meal or acid phosphate, working the ground over in the meantime with the plow and disk harrow until the whole is cut up and thoroughly mixed. Allow the loam to lie out and bake in the sun between turnings-over. At the final working, hill it up with the plow so as to leave it in ridges, where it will bake and heat, starting the fermenting process.

The action of lime is threefold: Mechanical, chemical and biological. It renders clay soils more friable, and it compacts loose, sandy ones. It decomposes organic matter and promotes nitrification. It increases the power of the soil to fix ammonia in the form of nitrates. It neutralizes sour soil and prevents the formation of poisonous compounds.

The mechanical condition of the soil is important, and it should never be worked or handled when it is wet. Some people advocate the use of a drier to dry the loam, but I think this would be too expensive an operation; besides, Nature's way is the best. Let the sun and air do the work, and select a dry time for getting it into the house. If needed for Winter use, pile it up in the Fall and cover to keep dry.

A chemical analysis will tell you how much of certain food elements a soil contains, but it does not show how much of this quantity is in an available state for the use and growth of the plant. We must observe and experiment unless we are well acquainted with our soil. A fertile soil is one that has the power to produce crops. A soil may possess an abundance of the materials requisite for plant growth, but if they are locked up as insoluble compounds, they might as well be absent, so far as we are concerned.

Fertilizers have often been a stumbling block and have probably caused more failures than any other thing. A fertile soil may be kept fertile by giving back to it the ingredients removed by the crops grown on it. Most of our soils are deficient in phosphorus, and it is almost impossible in general practice to apply too much of this element to the ground outdoors. Inside, with ordinary

care, either bone meal or acid phosphate is safe to apply. Either of these should be worked into the soil before planting and they may also be used as a top-dressing during the growing season. They may be mixed with the soil in quantity sufficient for the season's growth, as they combine with the soil and do not leach out, as do nitrogenous manures. We have used acid phosphate for a number of years with good results. It costs less than bone, contains almost as much phosphoric acid and is more quickly available.

Another element that is deficient is nitrogen, and we find that nitrate of soda is particularly valuable on our soil, when we require a quick-acting stimulant. This should be applied sparingly as a top-dressing; it should be crushed fine and may be mixed with equal parts of fine, dry loam to insure a thin coat. It will not exhaust the soil if other ingredients are added as required. Nitrate of soda is good for certain soils that are naturally deficient in carbonate of lime, differing in this respect from sulphate of ammonia, the continued use of which under such circumstances would make the soil more acid.

The nitrogen in nitrate of soda is more valuable than the nitrogen in barnyard manure, as it is more quickly available. Ordinary barnyard manure contains about ten pounds each of nitrogen and potassium per ton and only about two pounds of phosphorus. The content of the latter element is low, because the animals use this up to make bone and milk. It will thus be seen that phosphorus is mostly needed to supplement organic manures, and acid phosphate spread liberally on the manure as it is made and carried from the barn helps to make up the deficiency. The liquid should not be separated from the solid or allowed to run to waste; the urine contains nitrogen, but is practically devoid of phosphoric acid. The soluble nitrogen compounds are wasted in the drainage from the manure pile.

The value of a commercial fertilizer depends on its available content of the elements lacking in the particular soil on which it is to be used. The high-analysis fertilizers are more economical than the low, for the reason that the cost of mixing, bagging, freight charges and all expenses are relatively greater in the low grade than in the higher.

Sulphate of ammonia is the most concentrated of all nitrogenous manures in common use. It should never be used with any mixture containing free lime, for the reason that when the base, lime, comes in contact with an ammonium salt, the sulphuric acid changes its old base, ammonia, for the stronger base, lime; sulphate of lime or gypsum, which is noxious to plants, is formed, and ammonia escapes as a gas and is lost. Neither should lime be used at the same time with bone meal or with acid phosphate, as in this case the phosphoric acid is rendered insoluble. The less the lime content in acid phosphate, the more water-soluble phosphoric acid it contains.

After we have carefully prepared our loam and filled the beds or benches, we are ready for planting and none but the best plants should be used. Select those varieties that do best with you and then use only the best plants that you can get in those kinds. Our experience is that in light soil grafted stock is decidedly superior to own-root, and we shall not plant any more of the latter. The grafted gives us much greater returns. Water well after planting and then use care for a time not to get the plants too wet. It is best to water early in the morning, although in the heat of the Summer watering may also be done in the evening. Spray frequently in hot, sunny weather, but omit this on damp, cloudy days. After the plants are

established and growing well in the Summer time, it is almost impossible to overwater them. Cultivate them by hand, rubbing over the surface of the soil about once a week for the first six weeks after planting. After this time, the plants are generally ready for a mulch of manure, or manure with loam in. Before this is put on, you may sprinkle with bone if you failed to get enough into your soil at planting time.

The regular routine work, such as syringing, fumigating, tying, pinching or disbudding, should be faithfully attended to, to get the best results. Ventilate early in the morning, commencing as the temperature shows the first sign of rising. In the hot Spring months this is especially important. Avoid letting the house get hot early in the morning and then giving a great deal of air to cool it off. This is a sure way to get mildew and the best preventive of mildew is early morning ventilation. The more air we can give on all sunny days and the better we can keep up the required temperature, the better results we shall get. Some of you may have had a nice, new house, as tight as a drum, and yet have not gotten as good results in it as you did in a house not so tight. We ventilate to regulate the heat and to supply our plants with carbonic acid, of which there is said to be twenty-one ounces in every square foot of the air overlying the earth's surface. It should be remembered that this is a constant quantity, and is far in excess of the plants' requirements. It would seem, then, that if we give too much air on cloudy days, when the plants cannot assimilate the carbon, we may do damage, but in greenhouse practice it happens that on sunny days we naturally have to give more air than on cloudy ones. It is a point worth remembering, and it is well not to overdo the fresh air in dark weather, when the plants cannot assimilate it.

Failures in rose growing are more often due to lack of attention than to lack of knowledge. Do not make the mistake of trusting to one idea or jumping at conclusions, or considering one point all-important. On benches, too much water carelessly applied at one time will wash away and leach out much of the nitrogen, whereas on solid beds there is some possibility of recovering a part of this by capillary attraction.

We have now a wonderful lot of roses to grow. New ones are being sent out this year, and we are promised still more for next year. Great strides have been made. I do not think that we shall ever see the perfect rose. I rather hope not, for it seems that if we ever attained perfection, there would be an end of all endeavor, and the joy of trying out new varieties would be at an end.

The four great principles of plant life are absorption, assimilation, evaporation and propagation, and in the proper functioning of these depend the life of the plant and our returns.

Plants absorb carbonic acid through their leaves, through the influence of sunlight. They absorb through their roots the moisture of the soil and water saturated with the soluble mineral elements which the plant needs through the capillarity of the root system. There is no such thing as the roots absorbing solid matter. They absorb what they can, or what they require for their sustenance, and give off the balance by evaporation, besides making the flowers for our commercial benefit.

However, the soil must be in the right physical condition to promote the growth of the nitrifying bacteria and must have a medium for carrying the bacteria. Peat is a good medium for this purpose. It must have water, air, warmth. A temperature of 75 to 100 degrees is best for this purpose; this tells us why the Summer time is the time to grow our plants. Get an early start and grow a large plant before Fall, if you want to make any money growing roses. Too much water will exclude the air and

arrest the process of nitrification. I was taught that the nitrification stops when it reaches its limit and then the reverse takes place, the so-called denitrification.

ROSES UNDER GLASS

BACK to the Cotswolds and early days, and the palm for Tea Roses under glass is ungrudgingly given to "Old Jarge," "T' Pa'ason's" gardener in that old fashioned rectory garden on the Cotswold Hills, writes K. Dublin in *The Garden*. The "grinhus" was to all intents and purposes a rose-house, climbing varieties, among which "Glory de John" loomed large, practically covering all roof space. It seemed a case of singleness of purpose accomplishing more than a plurality of talent, for the worthy Rector, whose tastes for following the hounds little pleased the proletariat of the parish prone to stray into the "Methody" fold, leaving him with but few of the faithful to care for, took a liberal share in gardening generally to the end of taking credit for success or blame for failure, but in the "grinhus" "Old Jarge" was "aut Cæsar aut nullus."

DIGRESSING AND REMINISCING.—Certainly as "sextant" "Old Jarge" was invested with a certain amount of ecclesiastical dignity, the more especially as, by the keener critics of his master's theology, he was credited with (or accused of) having a hand in concocting the Sunday sermon. This he did not affirm, yet it was rather suspicious that he never denied it; but there may have been less truth in that than in the report that on a certain Sunday morning only the twain turned up for the service, and when "T' Pa'ason" mounted to the top story of the shaky old three-decker pulpit, "Jarge," handing up the ponderous church key, asked him to "lock up when he'd done, there being no use in his a'waiting." That happened prior to my migration to the Cotswolds in 1873, for the minimum congregation personally experienced (including myself) was seven.

"You may break, you may shatter, the vase as you will, but the scent of the Roses will hang round it still," and fragrant memories gratefully crop up of "Old Jarge's" Roses. He lived with them and for them a long and happy life. That was the time when the brave old Maréchal Niel was in the heyday of youth and beauty, and "Jarge," who managed to secure buds from "T' Squire's" garden (Squire Elwes of Colesborne, father of the late Mr. H. J. Elwes) soon converted them into half-standards potted up for "t' grinhus." Could one ever forget those glorious canary-colored, oval-shaped blooms never seen equalled since, compared with which the now rarely seen Maréchal of latter days is of decidedly degraded rank. No! for the exquisite perfume comes wafted back over years. "Old Jarge" and his Roses were talked of from "Cisseter" (Cirencester) to Cheltenham.

But there came times when good relations 'twixt garden (or rather "grinhus") and house were strained almost to breaking point. Those were the "feeding times" when "Jarge," after soaking the border with rain water from the cistern, followed it up by many buckets of nourishing liquid from the sewage tank, and all the rectory windows on the windward side were kept religiously closed. Another critical period was when "Jarge" "smoked t' grinhus," and the same exclusive method was perforce repeated by the maids. "Zeed old Jarge a scratching hisself in t' grinhus this marning" was the sure and certain sign that he had seen signs of green fly, his "bête vert," on his beloved, and weather permitting, fumigation would follow that evening. So much in sympathy was the old man with the objects of his love and care that was there any signs of their discomfort he was telepathically uncomfortable, too. But, as Dean Hole would have said, he had Roses in his heart.

On Designing a Garden

PERCY S. CANE in *The Garden*

TO plan and make a garden is a pastime that appeals very much to most of us. The love of plants and the soil is a natural one, and the rich brown color and clean, healthy scent of newly turned ground is delightful to nearly all of us. In larger gardens much of the work must be done by gardeners, but true plant-lovers like digging and planting, and the pleasure of seeing the results of their own handiwork.

The gardens of today are carefully thought out, and are generally in their results much more beautiful than was formerly the case. They may be formal or informal, stately or picturesque, as seems most fitting, but whatever the style, one should feel in any garden that its own particular character has been developed in the most effective way.

Whether large or small, any grounds should contain, in balanced arrangement, as many of the different kinds of gardens as the nature of the site makes reasonable.

Of the different gardens that one may have, several may be classed as indispensable. Everyone will wish to possess a rose garden, and almost everyone will want herbaceous borders; while a collection of flowering and foliage trees and shrubs may, in Spring and early Summer, form some of the most beautiful and typically English scenes it is possible to have. Rock gardens are always interesting, and when well placed and well made may be very beautiful. Their site, however, needs careful choosing, for, of all gardens, a rock garden must fit happily into its surroundings, otherwise it is better far to do without it. This may be said to apply to greater or less extent to all types of garden, but a formal garden is obviously designed and made, whereas the appearance of a rock garden should arouse the feeling that it has grown there naturally and that no other sort of garden could possibly be in that place.

It has sometimes occurred to me that a great number of people miss a lot of the pleasure of garden making. They like plants of all kinds, but they like them as separate plants, and often entirely miss the added delight of putting them in their right place in the garden. In working or playing with them, whichever way you like to have it, they should, in fact, be used as an artist uses the paint on his canvas, every bit of form and every touch of color subservient to and helping to make the finished picture. This is the way to use plants, unless you are, or wish to be a collector, and like to see them in straight rows, each plant with every atom of its natural beauty carefully staked away. I think that even collections should be in groups and each group as big as the space allows.

Some people possess a happy instinct so far as the design and arrangement of gardens is concerned. The quality most essential to success in such work and the quality, the evidence of which I have found most often missing in gardens I have visited, is the sense of proportion. Many people realize this, yet I have often been asked to treat a certain area of ground, my client saying "we can go farther if necessary when this is done," apparently oblivious of the fact that to extend the gardens in any particular direction might very probably entail the alteration of every garden already made on that axial line. For the plant-lover the choosing of trees, shrubs and plants is an engrossing task. The choice and use of plants are inseparably interwoven. Certain plants belong to certain parts of the garden, and one feels instinctively that they could only be used in particular places and for certain kinds of planting. Shrubs, especially those of beautiful

habit of growth, seldom, if ever, look well in straight borders, and, generally, the more informal the method of planting the better. As with most other plants, the greater number of shrubs should be planted in masses. To see this it is only necessary to compare the effect of a glowing bank of *Berberis Thunbergii* in Autumn, a stretch of *Cotoneaster horizontalis*, or a foamy mass of *Cytisus albus* or *C. præcox* in flower, or seas of *Rhododendrons*, with single specimens of these same plants dotted in a mixed shrubbery. In fact, the difference between single plants and masses of the same thing is often so wonderful that it is difficult to believe they are the same.

Do not plant uninteresting trees, shrubs or plants. There are so many that are really beautiful that the largest garden could scarcely contain them all, at any rate in sufficient numbers to make the most effective planting. It is a sense, partly intuitive, partly the result of training and constantly observing plants, that tells us how and where to use certain plants and what kinds are best for certain positions.

Quite a large number of plants may be grown under any ordinary conditions, but no one would think of planting the *Candelabra Primulas*, Japanese *Irises* or *Myosotis palustris*, for example, or any other moisture-loving plants on dry banks or in any position other than low down in damp ground or near water.

In some way one must always contrive a culminating point, which must be approached with increasing interest. From it one must go to unexpected but lesser features, being surprised and pleased to the limits of the grounds.

Between the house and its immediate terraces and surroundings and this principal feature in any set of gardens there should be a pause, as in a good musical composition one must be prepared for, and lead gradually to the point of greatest interest. It is also interesting to take the best of whatever old work is most suitable, and by judgment and good taste make of it a beautiful adaptation for your own grounds.

Another reason for having gardens as widely contrasting in character as space will allow—and it is wonderful how much may be done in a small space if everything is kept to scale—is that one can grow all, of the hosts of different plants as they should be grown in their proper places. Herbaceous plants, annuals and biennials will be planted in the more formal gardens—roses, of course, in the rose garden, and the smaller-growing trees and most of the shrubs in the more natural parts of the grounds. Do not make the mistake of mixing roses with other things, they are essentially plants to be grown by themselves. As in many other races of plants, there is a harmony in their coloring that, like the Scottish clannish feeling, is for members of the family alone. There are, however, exceptions to this rule, as to most others. Numbers of the rose species, such as *Moyesii*, *rubrifolia* and several others can be used most effectively in shrubberies, on banks and in many places other than in the rose garden.

With the significance that the appearance of most shrubberies gives to it, the word "shrubbery" is a detestable one. The shrubbery walks and gardens in which, as well as shrubs, many of the smaller trees will be included, should be some of the most naturally beautiful parts of any garden. The bright colors of their flowers in Spring and early Summer, the variety of choice they offer for any soil and situation and, above all, the beauty of form

(Continued on page 154)

Plant Aggressiveness

WILLARD N. CLUTE

ONE does not have to possess a garden long to discover that plants differ greatly among themselves as to the ruggedness of their constitutions and the measure of composure with which they endure adversity. Looking through the dealer's catalogue he may imagine that all the treasures there described are equally easy of cultivation but he soon discovers his mistake. One plant will require every art to make it grow at all, while another close by is so enterprising that if unchecked it would soon take the garden to itself. From sad experience we have learned better than to trust our tender young onions, radishes and lettuces in the garden by themselves. They get along very well together, it is true, possessing a sort of well-bred repression that plants long accustomed to the polite society of the garden should exhibit, but the wild plants are of a less retiring disposition. Their motto seems to be "get while the getting is good, and take all you can." There is no danger that our cultivated plants will spread out all over the garden, but there is a very real danger that the garden will spread out all over them.

We have dubbed these more aggressive wild species "weeds" and have in many cases passed laws against them, but this does not seem to bother them much. The only legislation that appeals to them comes from a sharp hoe in the hands of a determined gardener. A weed has often been defined as a plant out of place, and so it is in most cases, but we have yet to discover what it is that enables them to get out of place. First, of course, comes the ability to spread rapidly into any region open to them, and next comes the ability to hold what they have taken. The first is usually accomplished by means of light and easily transported seeds and the second by some method of vegetative multiplication. Plants with easily distributed seeds, however, are not always pernicious weeds, for many such have very little ability to hold the ground against others.

The worst weeds are usually those plants with effective means of spreading in a locality after they have become established in it, especially if they happen to be perennials instead of annuals. In general, weeds have the additional faculty of surviving all sorts of untoward conditions. Our garden plants may perish in seasons of unusual drought or cold but not the weeds. Although they may be reduced considerably in numbers there are always enough left to maintain the hope of the race. They have waged war so long with the garden and the gardener, not to mention wind and weather, that they are particularly resistant. It is doubtful whether anybody ever really got the best of a well established patch of quack grass. He may fight it Summer after Summer until the victory appears to have been won, but here and there, concealed by the foliage of other plants or hidden entirely underground, are certain small remnants that bide their time and as soon as the gardener's vigilance is relaxed, back comes the quack grass again!

Our consideration of what constitutes a weed is often modified by considerations of how much it happens to be out of place. Some plants, though regarded as weeds, show so little hostility to our garden crops that it is hard to work up much of a sentiment against them. A patch of tansy along a country roadside is seldom spoken of in disparaging terms. We look upon it with toleration or perhaps with stronger feelings that are quite akin to affection. It is a reminder of that mythical spot known as "grandmother's garden" in which we mentally culti-

vate all those well known plants with which we have been associated from infancy. In this category, also, comes catnip, and motherwort, and that other familiar plant with fragrant leaves the costmary or bible-leaf, which loves to make fragrant mats in out-of-the-way corners.

It always makes a difference whose ox is gored. The very qualities we abhor in the weeds, we commend in such of our garden plants as possess them. No one ever had a really fine peony that multiplied fast enough and the same might be said of irises and many another. Still, one can have too much of a good thing. A plant may lose its reputation for beauty by becoming too common. This is all that is the matter with the dandelion. If this plant had to be carefully cultivated in order to bloom, we should all want a specimen to experiment with. The toad-flax illustrates the idea very well, for it was originally a denizen of the flower garden and not until it showed a disposition to multiply at the expense of its companions was it thrown out to consort with other handsome floral vagabonds like the crown vetch, the common bell-flower and the tawny day lily. The toad-flax appears to hold a hope that it may again be admitted to the garden and, indeed, occasionally pushes in among its more aristocratic friends, but the crown vetch and the bell-flower have no such aspirations and seem perfectly content to establish the colonies by the roadside where they can see and be seen of all men.

The moneywort is fully as obnoxious as the toad-flax, but by confining itself to the lawn and rooting at every joint, it manages to escape eviction. A related species, *Lysimachia clethroides*, is fully as aggressive but possessing, as it does, a more beautiful truss of flowers and showing a disposition to decorate wet and shady places, is looked on with more toleration despite its tendency to spread into new regions.

It is difficult to say which is the worst, the Jerusalem artichoke in the vegetable garden or the lily-of-the-valley in the flower garden. The artichoke, like the quack grass, is able to come back if any small bit is left in the soil. Some in my garden has been coming back annually for more than ten years. Sometimes it seems to be completely eradicated but it manages to get into shape again by the time vacation is over.

The number of garden plants that spread all too rapidly is a large one. In many cases to introduce specimens into cultivation is to provide one's self with a fairly continuous job for half a lifetime. The lily-of-the-valley, though highly valued may easily become a pest among other plants. If only the true lilies would multiply as rapidly! The dame's violet has a tendency to appear in places where it is not wanted and the day-flower (*Commelina*) is a stubborn fighter. One of the evening primroses, *Fraseri*, takes the ground like the toad-flax and has no right to be included among other flowers.

While aggressiveness is often a good trait, it is restful to come back to those well-settled species, which, with no disposition to spread, still maintain existence for a long series of years untroubled by upstart weeds. The peony, the gas plant, the yucca and many another will come to mind in this connection. They do not have to be kept within bounds; they do not fail to come up each season strong and serene. They are the joy of the gardener and serve to keep up his courage when he is nearly overwhelmed with less deserving species that plan to take the garden away from him.

WATER GARDENING

THAT branch of horticulture collectively called water gardening has for years steadily gained in favor, writes Harry Johnson in *California Garden*. During the past 50 years great strides have been made in the development of varieties so that today one may have lilies of all colors and perfect form. All parts of the world have contributed species, from the frozen lakes of Sweden to the sweltering pools of the equator.

The great check to the uninitiated has been the prevalent idea of the necessity of large ponds. Nothing could be further from the truth. Many enthusiastic growers have their needs fulfilled and for years have had successful gardens with only an old washtub or half barrel sunk in the ground. Could anything be more simple? A single tub or an irregular group tastefully planted will give one a most pleasing and novel garden that will require a minimum of care.

Planting and care are of the simplest. To begin with a tub or half barrel should be secured that is water-tight. This should be sunk almost level with the grade and filled about two-fifths full of good garden loam, the heavier the soil used the better. If you have some well-rotted cow manure one part to two of soil may be thoroughly incorporated with it. A three-inch pot of bone-meal can also be mixed with good results. The lily root somewhat resembles in habit the root of the German iris. In planting it should be placed in a horizontal position and so that the growing point will be flush with the surface. To keep the water clear it is advisable to put about an inch of coarse sand over all. The planting is completed by filling the tub full of water.

It is essential in seeking a location for your tubs to bear in mind that water plants always thrive best in a sunny situation. Planting is usually done in early Spring but may be accomplished at any time except during the Winter.

The after care consists in keeping the tubs full of water and in removing occasionally the dead leaves and litter. It is well to put a goldfish in each tub to keep down the mosquito larvæ and to assist in keeping the water sweet and fresh. If properly balanced the water will never need changing.

The lotus, that flower sacred to the Hindoos, grows very well in tubs giving an abundance of its large, stately, peltate leaves borne on stout three-foot stems. The flowers are very beautiful and have a faint, peculiarly pleasing fragrance. The paper-like petals curve in over the central disk in which are embedded the large olive-shaped seeds. The mature seed pod looks for all the world like the rose of a water can. The rhizome is quite different from the water lilies proper and may best be pictured as two or three bananas strung end to end. They are very brittle and are easily broken in handling. In planting, place the rhizome horizontally three or four inches below the surface and so the growing point is just below. The tub, however, should be filled about two-thirds full of soil as two or three inches of water is sufficient. They should be planted in March and April when the dormant tubers may be had. Pot plants may be set at any time during the Summer. The flowers range from dark pink to light shades and also come in yellow.

Many small aquatics in habit similar to water lilies are well worth growing and serve to give variety. The water poppy is very hardy and the bright yellow flowers are counterparts of the California poppy. It increases by runners like the strawberry.

The number of plants that one may have is legion and all are easy to grow. Water is a very stable element and gives the same growing conditions to plants the world over.

THE NATURALIZATION OF PLANTS

THE naturalization of Spring-flowering plants is worthy of much wider expansion that is commonly practiced. Many of the hardy bulbs produce gorgeous effects in the conventional flower-garden where they serve a useful purpose, but for real garden adornment the most effective of all modes of arranging is to naturalize them in grass. In such situations, when once carefully planted, they provide an annual source of beauty and give no further trouble.

In many country places wide belts of bare grass lie between shrubberies and walks, which frequently never provide bright coloring, but only exist to be roughly mown about twice a year. The charming effects which may be produced on these sites by the planting of Spring-flowering bulbs surpass in beauty any formal Spring garden, however gay. In their natural bed of grass the bulbous flowers look far better than they do with the brown earth of a border beneath them.

Where space permits a long season of color display may be obtained by planting irregular groups of bulbs to follow each other in season, beginning as early as January with the Winter Aconite, and continuing in February with Snowdrops, Snowflakes and Chionodoxas. During March a wide choice of material is available which gives the intelligent planter much scope for beautiful color effects, such as Crocuses in variety, Scillas, Anemone apennina, Grape Hyacinths, and the early flowering Narcissi.

The later flowering Narcissi will provide ample material for extending the season through April and May, supplemented by such beautiful plants as the Dog-tooth Violet and several species of Fritillarias and Ornithogalums, all of which succeed and grow freely in grass. Tulips are seldom seen growing in grass, yet where the soil suits them, and there is no danger of the broad, fleshy leaves becoming injured by overhead traffic, both the species and many of the florists' varieties do wonderfully well in such places, and greatly assist in maintaining color and variety in the display.

Naturally the prettiest results are only obtainable when the grass need not be mown until hay-time. The leaves of the earlier flowering plants will then have completely died down, and those of the later flowering ones will have entered the ripening stage, so that the plant will suffer little from the loss of foliage.

Some of these plants and many others also lend themselves admirably to naturalization in our woodlands. The Winter Aconite is particularly suitable for planting under the branches of trees, where it flowers even earlier than in grass, and develops its foliage while the trees are still naked, covering the ground with a pretty, soft green carpet. When this fades the trees put forth their foliage, and hide the ground until Autumn. Crocuses and some of the Anemones are also very suitable for this purpose, and once established they take care of themselves.

There are many plants which do much better in the shelter of a woodland garden than in the open border. The various Christmas Roses flourish in sheltered nooks, and their flowers are much less liable to become weather-stained.

The beautiful North American *Trillium grandiflorum* loves shade and a moist, free soil in the low-lying parts of the wild garden. These few suggestions refer mainly to Spring flowers in the undressed portions of the pleasure garden, which may also be planted with subjects that will bloom through the Summer and Autumn and a few even in Winter. *Gardeners' Chronicle (British)*.

Every man has his gift, and the tools go to him that can use them. *Charles Kingsley*.

Can Narcissus Bulbs Be Grown In America?

IN the May issue of the *GARDENER'S CHRONICLE*, William H. de Graaff, well known narcissus bulb grower of Holland, gave as his opinion that it will not be possible to grow these bulbs successfully in this country for commercial purposes. Since then our attention has been directed to some recent statements made by American bulb growers, all of which prove interesting in that they show that time alone will tell what may be accomplished in America in the successful growing of narcissus and other bulbs.

A Florida bulb grower states that while it was at first claimed that good bulbs could not be grown in America, northern florists had to admit their mistake, when they found that southern florists were cutting fine flowers from bulbs of their own growing, and then advanced the plea that while these bulbs were all right in the South, they would not force when put under glass in the northern States. He claims that it has been shown, however, that where bulbs can be grown as a Winter crop, dug in April or May, and given the required rest, they are ready to bloom under glass or anywhere else from November 1 all through the Winter, just as imported bulbs do. Now that it is admitted that southern grown bulbs will force all right, he states it is argued that American growers cannot begin to produce the supply used in this country by the time the embargo against the narcissus goes into effect in 1926.

We think that the Florida grower is a little too optimistic when he states that while the possibility of producing the necessary supply may sound big to a little man who sits in an office, to the big American farmer it looks too small to engage his attention, adding that the American farmers have glutted the markets of the world with everything to which they have directed their efforts. He further states that he plants narcissus bulbs in rows two feet apart so that he can cultivate with a hoe or small tractor, (planting forty thousand bulbs to the acre) and that it would only take about eighteen hundred acres to produce this country's demand. He believes the bulbs he is now growing could not do better anywhere in the world than they do in his section; he is growing Chinese Narcissus, Paper White, Grand Primo, Grand Soleil d'Or, and Winter blooming gladioli. Nearly all these bulbs are said by him to have been growing in his section for forty years and are no longer an experiment, but no market could be found for them as long as this trade was controlled by the foreigners.

A bulb grower of Texas writes of his experience in the Rio Grande delta, stating that while one cannot grow tulips there because they must have a period of cold rest, he has taken once used narcissus and in one year had the same number of marketable bulbs and about twice as many small bulbs to grow another year. He planted Easter lilies, securing wonderful stalks of flowers and one marketable bulb the next Fall, and a lot of bulblets which require from one to two years before they reach the blooming size. He believes that the Rio Grande delta is going to be the section of the United States where our flowering bulbs which do not require Winter dormancy or shade will be grown, because the constant sunshine and fertile soil give them a brilliant coloring, and a sturdy and prolific growth that will carry these qualities to the North.

A California bulb grower writes that the work of growing bulbs in California must be largely experimental until more definite results can be obtained and directs at-

tention to the fact that in Holland, tulips, for instance, may thrive in one patch of soil whereas, almost within hailing distance, there will be soil entirely unfitted for tulip culture, and that this is true of other bulbs. So we can only learn after long experience just where bulbs can be most successfully grown in this country. Narcissus bulbs, he states, are only grown in about two provinces of Holland, and the soil varies so in the different localities that one place may be adapted to the growing of hyacinths while about a half mile away it is not adaptable to hyacinths, but excellent for growing daffodils.

We quote David Griffiths, bulb specialist of the Bureau of Plant Industry, from a recently published article: "We should keep firmly in mind that while there is no doubt that we can grow successfully the complete line of narcissus in this country, there is but little probability of accomplishing the fulfilling of our needs in the next twenty years." We feel that when that time arrives, some of us will no longer be as interested, as we are today, as to where narcissus bulbs can be successfully grown.

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ON SEEDING LAWNS IN LATE SUMMER

I READ the article "Seeding Lawns in Late Summer" in the May issue, and wish to add a little comment for your next issue. To my mind there is no question about it that Spring not alone is not the best time for seeding lawns, but it is not the time at all. No lawn should ever be started in the Spring for the simple reason that the thin young stand of grass has no chance whatever to get deep rooted enough to go through the trial season of hot weather. The weeds will soon get the upper hand and the result is waste of seed, waste of labor and lots of disappointment to the prospective owner of this lawn-to-be. Although I happen to be in the south at the present time, I have built and cared for many a lawn in the north and my argument applies to these as well. A well kept lawn is, to my judgment, the outstanding feature of beauty on any country place, no matter how large or how small this place may be. A thorough cultivation (for an entire Summer) of the plot where you intend to build your lawn is an absolute necessity, keeping down weeds as fast as they appear. Incorporate in the soil a liberal supply of stable manure to begin with, and finally have your plot by a heavy rolling, followed by a harrowing of the Scotch type of harrow, ready by beginning of September. Buy your seeds in separate quantities (not in mixture), sow at the rate of 120 lbs. to the acre, two parts of Kentucky Blue Grass to one part Red Top, equal part of English Rye grass and add five lbs. of White Dutch Clover, rake in or use the same fine harrow again and roll heavy. Top dress your stand of grass with bonemeal early next Spring at the rate of 600-800 lbs. to the acre and apply during the early Summer on a rainy day, 150 lbs. Nitrate of Soda per acre. Your lawn is made, and permanent. I have a lawn here on the estate (Great Falls, S. C.) now going through its second Summer of 90-100 degrees Fahrenheit for five months or more and have the prettiest green to be seen anywhere. The only thing necessary besides mowing is a thorough drenching with water occasionally and as we have a hydrant handy I do this with the fire hose. I have not a weed worthwhile and not one dandelion in this lawn today.

Great Falls, S. C.

ANDREW ANDERSEN.

ROSES THAT WILL GROW ANYWHERE

BY selecting some of the hardy types which will grow almost anywhere and under any conditions, it is possible to have roses throughout the Summer which, although they may not be as big or quite as varied in their shades of coloring as the tender types, adapted only to a regular "rose garden," are, nevertheless, entirely satisfactory and will give an abundance of bloom for cutting as well as being beautiful where they grow, writes F. F. Rockwell.

There is a whole class of roses, most of which have been introduced comparatively recently, which are literally as hardy as weeds, and which possess the very desirable quality of flowering more or less continuously throughout the entire season. These roses are known as the "baby ramblers," as most of them are dwarf growing forms of such well-known climbers as Crimson Rambler and Dorothy Perkins.

These roses closely resemble their cousins, the Climbing Ramblers, both as to appearance and in colors. They bear immense trusses of small roses and may be had in great variety of colors: pink, salmon-pink, rosy-pink, dark pink, carmine pink, cerise pink, or brilliant crimson with white centre, ruby crimson, cherry crimson, vermilion red shaded to orange, white or yellow.

So it is possible to suit almost every taste in regard to rose color. Some of them are remarkably fragrant and they may be used to splendid advantage in various ways in the home garden or grounds.

These little Baby roses grow on compact, well-shaped small bushes of from 18 inches to 2 feet in height, and are most effective to use as bedding plants where a solid mass in a single color may be made the keynote for the garden. Or they are excellent for use in borders or where they are mingled in with other garden flowers.

They are unusually prolific in their blooming and will bear continuously from early in the season until frost.

The Baby Ramblers, too, have the added advantage of being extremely easy to grow for they are uncommonly hardy and require no pruning. Removing the last season's flower stems is all that is necessary in that line.

When you are setting out these roses, be careful to put the top of the ball of earth about 2 inches below the soil level.

Among the most popular are the Mme. Norbert Levavasseur, similar in color to the climbing crimson Rambler; Mrs. Cutbush, which carries large clusters of medium sized flowers of a pleasing shade of peach-pink, and which blooms until late in the Autumn; Ellen Poulson, dark brilliant pink, and very fragrant; Erna Teschendorff, especially good for mass planting, beautiful deep crimson; Clothilde Soupert, white shading to deep pink in centre and excellent for bedding; Yvonne Rabier, good variety for massing, white with full double flowers.

The rugosa roses will make themselves at home even in such places as on an exposed bank or near the foundation of a building where most other plants would absolutely refuse to grow. The plants, after they once become established, throw up each year shoots or canes from under ground roots, and thus serve to make a thick, very effective hedge where it is desired to use the plants for this purpose. The foliage of the Rugosa roses is very robust and hardy, and insect and mildew proof, and remains beautiful all Summer long. The large single and double flowers are followed by brilliant red "seed pots" which remain on until well into the Winter. In addition to being so very hardy, the plants require no care in the way of pruning except to cut out the old canes clear back to the ground every second or third year to make more room for the new growth.

The Rugosa hybrids are almost as hardy as the regular

Rugosa, and the list of hybrids now contains many very beautiful varieties.

The Rugosa itself may be had in either the single red or white form, or in a double rose.

The Rugosa rose in a beautiful rosy carmine, which carries single, fragrant flowers. This blooms nearly the whole Summer. Rugosa alba is similar to the Rosa, except that the flowers are white. Conrad Ferdinand Meyer is a beautiful pure silvery pink. This is very hardy, and also fragrant, and has very attractive foliage which makes a valuable ornamental shrub.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 142)

tion covering over eight acres of space, and containing exhibits from not only Belgium but France, Great Britain, Holland and other countries, I was particularly struck with the eulogistic references to the wonderful display of ranunculus shown in one of the salons by Dr. Attilio Ragionieri, which appears to have been the real sensation of this immense and well varied show. This giant form of florists' ranunculus carried flowers which are all double "and some were fully six inches in diameter and set on a begonia plant would have passed for very double begonia blooms." We are told that there were not many white flowers, but all shades of yellow and gold, red and maroon, mauve and purple, pink, and almost scarlet. It is to be hoped that the Federal Horticultural Board will permit the importation of some of this new race of ranunculi. Surely they would create something of a sensation at the big Spring shows in 1924. It is too much to expect that these giant ranunculi will have any value in our climate as garden plants, but for gentle forcing purposes there should be a great field for them.

ON DESIGNING A GARDEN

(Continued from page 150)

of many of them, lend themselves in their successful planting to the making of some of the loveliest of garden scenes. The Japanese have the reputation for being supreme in the art of landscape gardening, but our English taste, a taste that is the product of long cultivation, likes, at any rate in its gardens, something that is English in feeling. With the more beautiful shrubs and trees, and it may be a few masses of the stronger-growing herbaceous plants and here and there a great boulder of stone, an artist can make gardens every line of which is a joy to look upon.

To see the most beautiful of shrubs grouping themselves in squares and rectangles, as I have seen them do under the supervision of really skilled gardeners, is something to be avoided. Shrubs should be chosen as much for the beauty of their habit of growth as for their flowers, for in form such planting as this is always lovely, whether the shrubs be in flower or not.

There are too many interesting and beautiful shrubs to attempt to enumerate them in the space of a short article. Be sure, however, to include some both of the upright and prostrate-growing Junipers. The grey-green color of their foliage as well as their beautiful habit of growth makes of them some of the most useful plants we have. Also utilize conifers and other evergreens in any planting of shrubs; they add weight, and, in Winter, will intensify the beautiful tracery of the branches of the deciduous trees and shrubs by the contrast with their own persistent green foliage.

To me the meanest flower that blows can give
Thoughts that do often lie too deep for tears.

—Wordsworth.

Preserve the Wild Flowers—Abolish the Sign Boards

DESTRUCTION OF WILD FLOWERS BY INJUDICIOUS PICKING

L. P. JENSEN*

AT the awakening of Nature in early Spring, when the buds burst open and the first wild flowers appear on the sunny hillsides, we feel the irresistible call of Nature and much of our leisure time is spent in the country, modern conveyances enabling us to go far afield in a relatively short time. Outdoor life is essential to our health and happiness and we enjoy it to its fullest extent, but in our enjoyment, through ignorance of the laws of Nature, we are often destroying and wasting the very things essential for a continuance of this healthful recreation. When we pick a handful of wake-robins, bloodroot or Dutchman's breeches we are not only depriving others of their enjoyment of them, but also prevent these plants perpetuating themselves by seed.

On that account some plants are becoming scarcer as the years go by, until some, such as the lady slipper orchids, wild lilies, gentians and hepaticas, have become so rare that they can be found only in out-of-the-way places, protected only by their inaccessibility. Not only are many plants being destroyed by picking of their flowers, but those growing in the loose soil of the woods are often entirely pulled out when the flowers are picked and the entire plant destroyed. Woody plants, such as the flowering dogwood, wild plum, crabapples, hawthorns and others which produce large numbers of showy flowers, are gradually disappearing from our woodlands, due to injudicious picking. In this case not only a few flowers are taken, but large branches are ruthlessly torn off, occasioning serious wounds, which, owing to their torn condition, cannot heal. Insects and diseases enter the plant tissue through these wounds and soon destroy the plants. Many wild flowers are so abundant in a locality and of such a persistent nature, that picking is permissible, but the following rules should be strictly observed.

Never break a branch off a tree or shrub, but cut with a sharp knife close to the main stem of the plant, making a wound easily healed by Nature.

Never pull or pick flowers; cut them with a sharp knife, thereby avoiding pulling up the entire plant.

Do not pick any flowers without leaving enough for seed and for other persons to enjoy.

Do not pick flowers for a moment's enjoyment, to be cast aside to wither in the sun.

Do not tear off large branches of flowering trees and shrubs for the decoration of your auto on the return journey from the woods; by so doing you are destroying the most charming feature of our natural wilderness.

If you desire to continue the enjoyment of our wild flowers and wish to pass them on to your children, as you surely do, you must help us put a stop to the injudicious picking of them.

*Arboriculturist, Missouri Botanic Garden.

WILL FLORISTS AID TO PRESERVE THE WILD FLOWERS

R. C. BENEDICT*

THE whole problem of wild plant conservation may be reduced to a few fundamentals. There are a considerable number of wild plants whose beauty makes them of interest to the general public. In this connection they are subject to gathering by the public itself and by the florist trade for distribution and sale to the

public. In the case of a large number of these wild plants, the natural stock is sufficient to supply all our present demands. Such plants do not enter in as part of the problem of wild plant conservation. A considerable number of wild plants however, for example many rather uncommon forms and others formerly common but now through collection greatly reduced in number, constitute a problem for the florist and also for the general citizen.

It would be unfortunate to render extinct any wild plant which has beauty and general interest. When attractive plants become reduced in numbers, it is desirable that the collection of the wild supply should be stopped. Naturally it will stop itself eventually, but, in the meantime, regions commonly visited by the public at large may have become so depleted of some of their beautiful plants to supply some distant private estate that visitors to the public domain will be deprived of one of the natural beauties of that region. So much by way of general preamble. Specifically, measures along the following lines have been discussed and in some cases enacted as State laws:

1. A protected list of uncommon plants has been established for the State of Vermont. Collection of these plants on public lands is restricted by the law to two specimens apiece for scientific purposes.

2. Collection on private land with the permission of the owner is specifically permitted as a matter of constitutional right.

3. In another State, Connecticut, the right to collection on private land and to transport within the State region of the State flower, laurel, and some other things is hedged about by the requirement of certain *permit forms* which must be attached to packages for shipment.

4. A law was proposed a year or so ago in Massachusetts to prevent entirely the public sale of the State flower, trailing arbutus, regardless of its source, whether public or private land. This was properly defeated, it seems to me, since the right of the landowner to dispose of plant growths on his land in any way he chooses seems to me nearly inalienable, though of course, there are necessary restrictions even in this connection regarding weeds and poisonous plants.

Can there be any reasonable objection on the part of the florist trade to the establishment of full protection on public lands against commercial collection, also excessive scientific collection?

If the commercial raising of certain uncommon wild plants is too difficult to be economic and feasible will not the florist trade be willing to refrain from the use of such species, even though scattered areas may still have considerable supplies available?

*Resident Investigator, Brooklyn Botanic Garden.

CAPE COD WARS ON SIGNBOARDS

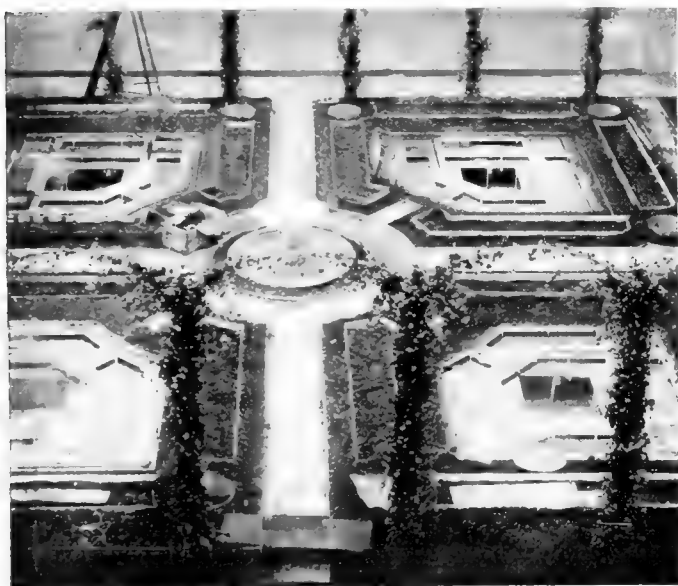
CERTAIN important groups of Cape Cod residents have begun a campaign against the advertising signboard. Their first aggressive move was in the form of a petition to the Board of Public Works signed by the Selectmen of fifteen towns in Barnstable county, representing among other things that Cape Cod people are largely dependent for their prosperity on Summer visitors. Whatever mars the distinctive scenic characteristics of the Cape tends to lessen its attraction for these temporary sojourners. Advertising signboards, it is contended, have this effect.

That, in brief, is the ground on which the Cape Cod folk pray that certain Cape highways be declared "scenic

highways" and that as such they be relieved of the signboards.

During the last week in April those interested in the maintenance of the billboard system of rural advertising made answer through counsel to the complaints set forth in the petition. In substance their reply was a general denial of pretty much everything the complainants alleged. It denied that the appeal itself was made in good faith; denied that hotel owners were in sympathy with it; characterized as "impractical persons" artists who object to signboards and declared that the women's clubs supporting the anti-billboard movement are doing so without careful study of the subject.

The battle in which Cape Cod residents are now engaging has been fought to a finish in several localities. In 1902, under the leadership of Franklin Murphy, then Governor of the State, New Jersey conducted a spirited



The under structure of the tulip garden at the International Flower Show

and very aggressive campaign against billboard advertising. It was not successful. An obstacle then encountered, and one which the Cape Cod movement may encounter, proved to be insurmountable. This was the willingness of landowners to rent ground for the erection of signboards and to let the sides and roofs of barns and sheds for advertising purposes. There was no way to prevent this from being done unless a public nuisance was created. That advertising signboards were a public nuisance could not be proved to the satisfaction of the courts.

To the final outcome dependence must be placed on appeal to public spirit over private interest.—*N. Y. Herald.*

Several years ago when the National Association of Gardeners undertook to inaugurate a propaganda to make Sign Board advertising unpopular and sought the co-operation of other organizations in its endeavor, the response was most encouraging and considerable publicity was given to the movement both through the press and otherwise, but in time interest waned. The association has maintained from the beginning that all efforts to control the signboards along the highways through legislation would only result in much wasted energy. It was estimated that \$40,000,000 was spent on signboard advertising in 1920. The signboard interests are well organized and strongly entrenched with an array of legal forces and lobbyists to combat any adverse legislation

which may arise against them, while their opponents lack organization. One suggestion made is that a heavy tax be placed on signboards. This, however, would not disturb the successful advertisers for it would only mean a slight increase in the cost of their signboard advertising. Another suggestion was to have the "anti's" pledge themselves to make the products advertised on signboards unpopular—in other words, boycott the goods so advertised. But who can imagine a woman, or a man either, on seeing a bargain offered and becoming interested, recalling that the advertiser's signboards at some time offended them by obstructing the scenic beauty along the countryside.

What has so far been done to make the signboards unpopular seems to have resulted only in making them more popular in the eyes of the advertisers. It is true that through moral suasion, an advertiser is occasionally prevailed upon to remove an objectionable signboard from a residential section or along a parkway, but this may be compared to picking an aphid from a rose bush and believing that thereby the entire pest will be destroyed. What is necessary is an effective contact remedy to reach all the signboard advertisers. Who can supply the formula?—*EDITOR.*

CONSTRUCTING A FLOWER SHOW GARDEN

(Continued from page 145)

twenty-six hundred Darwin tulips, fifteen hundred potted pansies, seventy-five hundred buxus Suffruticosa (from South Carolina), seven hundred and fifty plots of grass



A section of the tulip garden as it appeared when planted

and one hundred and fifty pressed bales of Holland peat. There was also a large quantity of English ivy, some dogwoods, and standard cherry trees, besides other seasonable flowering shrubs. Twenty-six tall cedars, all in tubs, served as a background. The quantity of planting material employed gives an idea of the immensity of the undertaking in creating a garden on an exhibition floor. There is no question but that such exhibits aid American horticulture in the development of better gardens.

When you know a thing, to hold that you know it; and when you do not know a thing, to allow that you do not know it; this is knowledge.—*Confucius.*

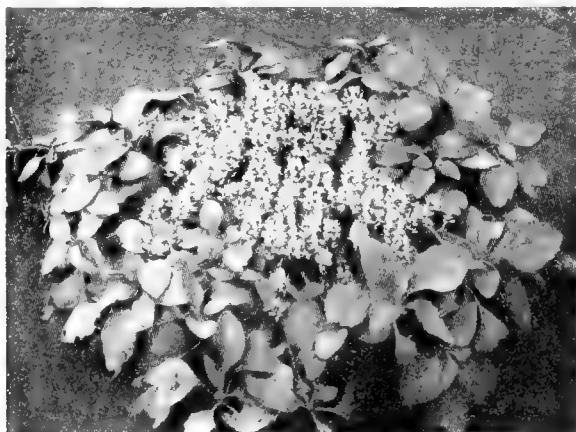
Foreign Exchange Department

SILENE HOOKERI.—Although introduced from California nearly half a century ago, this truly marvelous little plant, with its two-inch wide blossoms of clearest rose pink, rayed white, is still a rare plant in our rock-gardens. *Silene Hookeri* is readily raised from seed, and the young plants proceed at once to make a long thong of a taproot, crowned with a tuft of longish, narrow leaves of soft texture and grey with down. These leaves flop about loosely on the ground, and are safest on a layer of shingle to keep them clean and able to fulfil their natural functions. If raised in gentle heat early in the year, the young plants begin to flower in their first Summer. They send up from between the leaves about two-inch long stems, which flop about in various directions, each one crowned with one enormous, deeply-fringed



Silene Hookeri (Courtesy of Gardening Illustrated)

flower. This display continues for many weeks in well-established specimens, and good seed is produced fairly freely. In the Winter the plant dies down, out of harm's way, and provided the drainage is really perfect it appears stronger than ever next Spring. The plant is so beautiful that a little trouble is well repaid, and people who object to a little extra fuss must give up all thoughts of succeeding permanently with this plant in the open garden. There is, of course, not the slightest difficulty in growing it in pots or pans in sandy loam and leaf-mould for the Alpine house. In the open choose a place at the foot of a south-facing cliff or boulder—if on a sharpish slope so much the better. Dig out the soil for fully eighteen inches, give six inches of brickbats and broken



The remarkable herbaceous plant *Pachysandra Procumbens* (Courtesy of the Garden)

crocks for drainage, and fill in with a sharp screen mixture; four parts of limestone or granite chips to one part of leaf-mould and loam mixed, and plant as close up to the cliff or boulder as you can, and if your garden is in a district with a fairly pure atmosphere *Silene Hookeri* will probably settle down with you contentedly, and give you an increasing number of flowers from year to year. —*Gardening Illustrated*.

PACHYSANDRA PROCUMBENS.—This is quite an interesting herbaceous plant, which has the additional merits of being beautiful and uncommon. Its attractiveness lies chiefly in the thickened stamens from which it derives its generic name. The

sweet-scented flowers are moncecious on the same spike; the staminate flowers, which are in the majority, being above, while the few pistillate blossoms are below. All are without petals, the staminate flowers consisting of four greenish purple sepals, four stamens, which are opposite the sepals, and long thick filaments from one-third to half an inch long, which are exserted; while the few pistillate flowers, the sepals of which are variable, have a three-celled pistil, with two ovules in each cell and three comparatively large fleshy styles, which are spreading. The plant is of spreading habit, with stout, unbranched stems about nine inches in length, bearing at the top a cluster of dark bronzy evergreen leaves from two inches to four inches long, ovate or obovate, obtuse or acute at the apex, the upper part coarsely dentate, the lower part entire, narrowing at the base into a petiole, either equal to or shorter than the blade. The foliage gives the appearance of a ring surrounding the dense cylindrical spikes of flowers, which rise from the axils of the scales from the lower part of the branches. The culture of the plant is quite simple; it grows in ordinary soil and is a suitable plant for woodland or a semi-shady position. It can be propagated from cuttings, but the most convenient method is by division. It is a native of the South-Eastern United States and known as the Allegheny Mountain Spurge, but it is also found in Carolina and Kentucky. Other species of this interesting genus suitable for similar positions are *P. axillaris*, a Chinese species, and *P. terminalis* from Japan, as well as a variegated-leaved variety of the latter, sometimes grown in greenhouses as a foliage plant, although it appears to be perfectly hardy.—*The Garden*.

FENDLERA RUPICOLA.—*Fendlera Rupicola* is a beautiful deciduous shrub that deserves to be better known, for few plants are more effective, and at the same time more easily grown if



Fendlera Rupicola (Courtesy of Gardeners' Chronicle, British)

given a sunny, warm position. This interesting member of Saxifragaceæ is closely allied to *Philadelphus*, but differs from that genus by reason of its eight stamens and superior ovary. The beautiful white or faintly rose-tinged flowers, which individually somewhat resemble a Maltese cross, are from one to one and a half inches across and usually borne solitarily, but sometimes in threes on short twigs on the previous year's growth; the petals are rhombic-ovate and contracted at the base into a distinct claw, while the cluster of bright yellow stamens stands up erect on petaloid filaments and adds to the beauty of the flower. The almost sessile leaves are rigidly coriaceous, lanceolate on the sterile branches, about one inch long and one-half inch wide, prominently three-nerved, revolute at the margin, with short, stiff bristles above the greyish tomentum beneath, while the leaves on the flowering shoots are much smaller, being linear and clustered on short twigs. This sturdy, rigidly-branched, deciduous shrub is a native of the South-Western United States, and is found growing on the sun-burnt slopes in Texas, New Mexico, Arizona and Utah. It is considered to be one of the most beautiful plants of its own region, where its profusion of white, or rose-colored flowers is said to give it the appearance of a small Peach tree. The illustration shows a spray from a fine specimen eight feet high, growing against the Cactus House in the Botanic Garden, Cambridge. It is not particular as to soil and is readily raised from seed, or from cuttings of rather soft wood placed in gentle heat.—*Gardeners' Chronicle* (British).

IN PRAISE OF THE GAILLARDIA.—One often wonders why many gardeners do not make more use of this pleasing and accommodating perennial. There are so many points in its favor that it should receive more attention than is usually given to it. Still it is a very uncomplaining plant even though it does not always receive the due reward of its merits.

What are its merits? I have been trying to think of one word in which they could be summed up succinctly but the task is beyond me.

It is a good drought resister and produces in abundance, gaily colored flowers which enliven many a dull patch in the garden. The flowers are excellent for table decoration, lasting well in water and lending themselves naturally to artistic arrangement, so that the veriest tyro in the art of arranging flowers can make them look pleasing.

It is not exacting in the matter of soil or attention, yet if it does not get very much, it murmurs not nor complains but goes on producing its bright and glowing flowers in abundance.

Surely the Gaillardia is worthy of a little more attention and consideration than it usually receives at the hands of most gardeners. Grown in masses it is very beautiful and every garden should, if there is the slightest possible chance, have at least one far-sized bed given up to it.

According to the dependable Johnson, the Gaillardia hails from N. America. Those who prefer a good old-fashioned name will be glad to know that the Gaillardia rejoices in two—the Blanket Flower and the Flannel Flower. Of the two the former seems preferable and is certainly suggestive.—*So, African Gardening and Country Life*.

AN EARLY-FLOWERING ROCK PLANT. The Scrophularioid, *Synthyris reniformis*, is a native of North-West America. The tubular blooms are about a quarter of an inch in length, pale violet in color, and they are produced in quantity on erect spikes six inches or more in length. The leaves also are attractive, being deeply toothed at the margins. This plant is quite hardy and in its native habitat it is found growing in moist places, so it should be given a damp spot in the rock garden; although I have grown it successfully in various positions, except where it is heavily shaded. A cool loamy soil is needed, and in a dry season it may require water at the root to keep it going until more moist conditions prevail. This year it has flowered freely, and the earliness of *S. reniformis* should warrant it a place in every rock garden, while for an alpine house it would be found most useful for an early display. The plant can be increased by division and from seeds.—*The Garden*.

VIOLET CRESS (IONOPSIDIMUM ACAULE).—It would scarcely be thought that so diminutive a plant could possess much attraction in the flower garden—as it grows but three inches high—yet this is so, the tiny little plants covered with their lilac blue flowers being much admired at the present time, December 6th. The flowers vary considerably, both in size and color, and so freely are they borne that every plant becomes a cushion of bloom. Like all the Cresses, it appears to love cool, moist conditions. Its life is short, but the self-sown seeds germinate so quickly that plants are in flower more or less throughout the year. In the present instance it is used to carpet the ground among seedling Carnations, for being so small it does not in any way interfere with the latter. Where one wishes to make such beds attractive during the Winter a few seeds should be scattered among the plants in September or early October.—*Gardening Illustrated*.

PRIMULAS.—Where successional batches of the *sinensis* type are required, seed may now be sown, followed later on by other sowings, according to requirements. For decorative purposes the stellata varieties are most suitable, not only for their light, elegant effect, but also for their length and freedom of flowering. The variety Coral Pink and the "blue" varieties make a very effective color combination, as also do the red and white varieties. The seed should be sown in a light, rich compost, and may be germinated in slight warmth. Germination is generally very irregular, thus the seed pots should not be discarded too soon. During the Summer months the young plants should be grown in low pits or cold frames. The plants should be watered carefully at all times and kept shaded during the hottest part of the day. They enjoy a light, rich compost to which some old mortar rubble should be added. By growing them on a second year very fine specimens can be obtained, and for this purpose plants should be selected from a sowing made rather late last year. A bench of stellata varieties grown in this way has been in flower for close on six months in the conservatory at Kew, and at the time of writing are still a mass of flowers. *Gardeners' Chronicle* (British).

IRIS LACUSTRIS. One of the smallest of Irises, but an exceptionally charming one, is the miniature *Iris lacustris*, a perfect gem, smaller in all its parts than the equally charming *I. cristata*. It comes from the gravelly margins of some of the North American lakes, such as Lake Huron, and loves a moist soil, which, however, should not be too stiff, but rather friable and gritty.

There it will thrive and spread with fair rapidity, always provided its arch enemy, the slug, does not crop it to the ground. It grows only about three inches high, and gives its pretty leaves, like miniatures of those of the Flag Irises and exquisite little flowers, of a lovely amethyst-blue with a golden crest. It is a lovely little Iris, which may be planted in Spring to bloom the same Summer.—*Gardening Illustrated*.

PLACING FLOWER BEDS.—Many flower beds that in themselves are pretty are nevertheless ineffective because they are poorly placed. In the middle of the lawn a flower bed looks isolated and therefore is not pleasing, although an observer may not know just why the bed fails to satisfy the artistic sense. A flower bed should relate itself to the rest of the garden, for it is not there for its own sake but only as a part of the general scheme. When it has a hedge, a mass of shrubbery or a vine-covered fence for a background, the eye is gratified, for it finds exactly what it unconsciously seeks, a screen against which to view the flowers.—*Canadian Florist*.

THE TREE IVIES.—Everyone is familiar with the climbing forms of Ivy upon walls and buildings, but what is known as the Tree Ivy is not so well known. These Ivies are, in reality, merely a modification of the commoner form, and are principally valued on account of the fact that they are of a shrubby nature, and that they produce berries at an early stage of their existence. They are of comparatively slow growth, but they are useful in the garden scheme in various ways. When planted in masses their evergreen character makes them attractive throughout the year; they may be used in the foreground of shrubberies, and they are not unpleasing in colonies and on a lawn. As pot plants, too, the Tree Ivies are serviceable to those who have no other glass than an unheated greenhouse, and who must work only with quite hardy plants. Such plants are very useful for placing on balconies or in porches, the green foliage and, in their season, the berries, being noteworthy. There are several distinct kinds of Tree Ivies, among them *Hedera Helix arborea*—the commonest variety—*H. fructu luteo*, with yellow berries; *H. argentea marginata*, with silvery variegation; and *H. aurea*, the foliage of which is, more or less, suffused with yellow.—*Gardening*.

THE LEGEND OF THE XMAS ROSE

When the three Kings did come to Bethlehem
To greet the Babe, new-born, to heal our woes,
A little shepherd girl did follow them,
Hight Madelon. But for that she was poor,
And had no present to the Babe to bring
She lingered sadly all outside the door
In tears, and prayers, and humble sorrowing.
To whom came Angel Gabriel, and did say,
"What is your sorrow, little Madelon,
Why weep you so, and why thus lonely pray.
When all the world from Satan's thrall is won?"
Quoth she, "I have no present for the King
Who has no flower. Ah, woe is me,
For it is cold, and lacks so long to Spring.
Had I but roses now, all fair to see."
Then with his rod he struck the frozen ground,
Where out fresh roses there did straight appear,
These gathered she, and in a posy bound
Did bring to Jesus Babe, withouten fear.

* * * *

"In old Monks calendar the Xmas rose is allotted to St. Agnes as patroness of Purity. Therefore it was much used by the Ancients to purify their Temples and homes."—*So, African Gardening and Country Life*.

RHODORA CANADENSIS.—This is such an easily grown, charming little shrub that one wonders why it is not more often seen. It is adaptable for the rock garden (being no more than two feet to four feet in height), the front of the border or open woodland, and all it asks is any cool loam that does not dry out too quickly in Summer. Peat and leaf-mould it enjoys, but these are not always essential. We have grown *R. canadensis* for many years and not once has it failed to produce a mass of blossom in early Spring. It generally flowers just as *Rhododendron præcox*, *R. ciliatum*, and other early kinds are going off and, being deciduous, the leaves do not appear until the blossoming is over. The flowers, which are borne in clusters at the tips of the twigs, are a vivid rose-purple with long, silvery stamens which protrude with an upward tilt like those of a Honeysuckle. Another name for *Rhodora canadensis* is *Rhododendron canadensis*.—*Gardeners' Chronicle* (British).

ROOT CUTTINGS.—Root cuttings are useful for increasing stock of many plants that are difficult to propagate in any other way. Plants producing suckers are easily worked by this method. Many plants that never sucker naturally will send out shoots when

root cuttings are inserted in sand. Autumn is the best season for making root cuttings as the ripened root contains a large amount of matter stored up, which will produce either roots or shoots. Some plants require heat to strike their root cuttings, but there are many others which will grow easily without any heat. A good subject to try root cuttings of is the Californian Poppy, *Romneya coulteri*.—*So. African Gardening and Country Life*.

Brief Horticultural Jottings

Under the heading "A Spring Garden Growing Wild in the Fields of Texas," the *Christian Science Monitor* writes: The botanical name for the Texas bluebonnet, is *lupinus texensis*. Old settlers have named this plant Buffalo Clover. This is the state flower, and covers the meadows, hillsides, railroad right-of-ways, and roadsides with its extravagant blossoms and foliage from April until July. The plants stand about ten inches high, and have palmately compound leaves and elongated clusters of ultramarine with purple-colored flowers. Each flower is a bonnet-shaped series of petals, with a white blotch on the upper petal, next the bonnet crown, which turns to pink as the flower grows older. After being open about six days the blossom is dropped and a pod appears. These erect, full, silky, hairy pods form up the flower stalk as the blossoms continue to open nearer the end. The flowers cluster thickly on a pencil-size stalk which is usually six inches long and resembles the well-known wisteria blossoms in arrangement. One plant often yields eight clusters. Bluebonnets grow in patches on hillsides or stream banks where the foundation is rocky and the soil is well drained. The roots of these plants are interesting because of the nodules that form to gather the nitrogen from the soil.

That Madison, N. J., is the location of one of the two largest sassafras trees in the world was recently brought to light in an editorial in the *New York Tribune* which stated: It has been declared by United States government experts to be one of the largest sassafras trees ever known in the world, the other, of almost precisely the same gigantic proportions, being in Missouri. Such a unique wonder of the sylvan world may well be the object of civic pride and guardianship. A community which is so fortunate as to be endowed by Nature with a living memorial of colossal stature, vital and vigorous with the strength of centuries, should surely conserve it at least as jealously as it would any structure of men's hands.

The trunk on the big sassafras measures about eight feet in diameter, and one of its enormous branches extends over the road. It is believed that its age is more than 150 years, with 200 years being more than nearly the exact figure.

In an article in the "Horticulture in Holland," Quarantine No. 37 and the Federal Horticultural Board are again being severely condemned. It asserts that European countries will take reprisals, first against California fruit which is being imported in enormous quantities. Diseases, it is claimed, have been found on this fruit which form a great danger to European Nurseries and if Europe should adopt American measures, American fruit must be prohibited from Europe, and the same fruit which is now obtained from California can be imported from South Africa and Australia. The statement is made that leading men in some countries have already come in contact in order to bring their governments to this point of view: if America goes on to exclude European horticultural products, it will only be right to exclude American fruit and agricultural products from Europe. This will in the coming years be the slogan for the International Congresses and those interested will not rest until the slogan is put into practice.

Called according to its alias, the "boll weevil," this bug which has carried destruction to southern planters' fields has had bestowed upon it a distinction never before vouchsafed to any insect of any species: a real monument has been erected to it by the town of Enterprise, in Coffee County, Alabama, with a real inscription

In Profound Appreciation
Of the Boll Weevil
And What It Has Done
As the Herald of Prosperity
This Monument Is Erected

When locusts lit on Egypt they did hardly more damage, some Alabamans assert, than did "boll weevil" when it chewed up Coffee County's cotton crop, the second season. Production fell from 35,000 bales to about 10,000. Coffee County, facing the need of innovation or bankruptcy, turned to raising corn, sugar-cane, cattle, hogs, peanuts, hay and sweet potatoes with a will. The result was

that peanuts alone returned \$5,000,000, it is said, in a season, which is not considered bad for a county of 1,500 farmers.

The boll weevil's ravages turned crop rotation from theory into a necessity in the South. The monument is more than a town's passing whim, it marks the time when the cost of efficient production was discovered, on which discovery the cornerstone of agricultural success has been laid.

An international conference of phytopathologists and entomologists will be held at Wageningen, the center of one of Holland's market gardening districts, from June 25 to June 30. The conference will be presided over by the Dutch Premier and the Minister of Agriculture, and the honorary Presidents include Dr. L. O. Howard, Director of Entomology of the Washington Department of Agriculture.

One of the chief questions under discussion will be the carrying of plant sickness and insect plagues, and international co-operation and control in preventing the transporting of these plagues.

Great interest has been evinced in the conference from all sides, and no less than twenty-one foreign countries, including the United States, are sending fifty-three experts as delegates.

Dr. Howard will deliver one of the first lectures on International Co-operation to Combat Plant Sickness and Insect Plagues." Dr. C. L. Shear of the United States will lecture on "International Statistics and Supervision of Plant Sickness."—*New York Herald*.

It is reported from Germany that an experimenter has obtained good results by storing juicy fruit, such as pears, in peat dust, says *The Fruit-Grower* (London). By reducing evaporation, peat dust is said to enable the fruit to ripen without wrinkling. When damp and loosely packed peat dust is used, fruit will keep good, and, so the report says, even improve in color. It is not claimed, however, that the use of peat dust will arrest or eliminate decay if the fruit is in any way infected by bacteria before storage.

Comments from Our Readers

Your article in the May number, "Planting Trees as Memorials," should not only inspire "tree lovers" to advocate the use of trees for memorials, but should urge them to greater effort to spare those silent sentinels that have stood, for many, many years, and which are often thoughtlessly sacrificed for "civic improvements" where a little consideration would not only save them but would also benefit the contemplated improvements. It is not uncommon to see beautiful specimens destroyed to make a contractor's job easier, where with a little extra exertion, the work could be accomplished without molesting the trees. It takes but the blow of an ax to destroy what it has taken Nature a century to produce, and it is not in man's power to replace it. The great value of trees to a community is not recognized as it should be. If it were, there would be less ruthless destruction of them.

Chestnut Hill, Pa.

Mrs. H. T. H.

In reading the reprints and excerpts in the *GARDENERS' CHRONICLE* from the foreign gardening magazines, it is really surprising how much better some of the European gardeners are informed on our native plants than we appear to be here at home. One hears so much of being deprived of European plants through Quarantine No. 37, that he feels we possess nothing worth while of our own, while the foreigners write enthusiastically over their experiences with American species. Instead of bemoaning their fate over the loss of foreign supply, why do not the American nurserymen exert themselves to develop those beautiful American shrubs that we read of, but do not seem to be able to obtain?

New Rochelle, N. Y.

Mrs. F. B. L.

In your current issue, you ask readers to suggest what may occur to them. Repeatedly in your paper—and naturally elsewhere as well, I read of varieties that I cannot find listed in any catalog. Last year this occurred in several articles on rare plants and alpinists. In this very issue, you have two articles on Spring flowering bulbs, and at least half of these I cannot locate. Whereas I realize it is contrary to the policy of most papers to introduce in reading matter anything that might appear to be of an advertising nature, still I do not believe you would antagonize any dealer if you would in some way, note where the plants or seeds were obtainable. It would, I am sure, be of great value to readers.

Greenwich, Conn.

H. J. E.

H. J. E.'s suggestion is an excellent one, and the *GARDENERS' CHRONICLE* will adopt it at an early date, when rare varieties of plants or bulbs are referred to by stating, whenever possible, where they may be obtained.—Editor.

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa., August 14, 15, 16, 17.

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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Secretary M. C. EBEL, <i>New York, N. Y.</i>	Treasurer MONTAGUE FREE, <i>Brooklyn, N. Y.</i>

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LOCAL BRANCHES

NEWPORT, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.

ST. LOUIS, MO.: George H. Pring, chairman; Hugo M. Schaff, secretary.

NASSAU COUNTY, L. I.: James Duthie, Oyster Bay, chairman; John McCulloch, Oyster Bay, secretary.

BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Craig, Weymouth, secretary.

WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

CLEVELAND, O.: R. P. Brydon, chairman; Arthur Brown, Cleveland, secretary.

THE COMING PITTSBURGH CONVENTION

The time is drawing near for the annual convention at Pittsburgh on August 14, 15, 16, 17. It is but two months off so it is none too soon for members to make their plans to absent themselves from work for a few days to actively participate in the affairs of the association and to engage in the discussions of the subjects which will be brought up concerning the welfare of the gardener and his profession. There will not be an idle moment, for when the visiting members are not at work, they will be kept busy with the entertainment that is being planned for them.

The Ladies' committee is not overlooking the interest of the women and daughters of the gardeners who are expected to attend.

President Barnett and his associates on the various committees are looking forward to greet a big gathering. So let us not disappoint them. Remember that "All work and no play makes Jack a dull boy."

THE CONCLUSION OF AN UNPLEASANT INCIDENT

The many communications which have been received from branches of the National Association of Gardeners, local societies, and individuals, show that the resentment among the gardeners towards the *Florists' Exchange* over its unfriendly attitude towards the gardeners and its unwillingness to publish the gardeners' side of the controversy was far reaching. Space will not permit publishing each report received in detail, but the resolutions from numerous organizations were unanimous in their approval of the stand taken by the association in defense of the gardeners.

At the May meeting of the Gardeners' and Florists' Club of Boston, Mr. Thommen who made the accusation that disturbed the heretofore friendly relations between the gardeners and the *Florists' Exchange*, refused to substantiate his statement and was given the alternative of retracting, apologizing, or resigning from membership in the club. He preferred the latter course and the club at once unanimously accepted his resignation. I believe that I truly voice the sentiment of the members of the N. A. G. in saying that they also cherish the hope expressed by the *Florists' Exchange* in its last editorial "that time will soon see the closing of the breach under the healing influence of a new mutual understanding and a sympathetic co-operation looking to that consummation to which we are all dedicated—the future welfare of horticulture."

The ancient and honorable profession of gardening has passed through this regrettable affair unscathed. The gardeners will continue to strive for the advancement of their profession and to improve the condition within it, so that the gardeners of the coming generations will find the profession a more lucrative vocation than do the average gardeners of the present age, who must accept as part compensation for their work, the enjoyment they find in toiling with Nature to produce that which comes out of the soil and without which man cannot long survive.

M. C. E.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of the Western Pennsylvania Branch of the National Association of Gardeners was held in the Carnegie Library, Pittsburgh on May 15th, Manus Curran, Chairman, presiding.

A letter was read from the Allegheny County Conservation Federation inviting this branch to become a member of their organization. The Secretary was instructed to write to the Federation advising it that the Western Pennsylvania Branch heartily endorses its objects, but inasmuch as most of the members are members of the Sewickley Horticultural Society or the Pittsburgh Florist's Club, it does not feel it is necessary to hold membership in the Federation.

The chairmen of the various convention committees all reported progress, and everyone is co-operating to make the national convention at the Fort Pitt Hotel, Pittsburgh, August 14, 15, 16 and 17 a success.

The application of Robert Gardener for membership in the National Association of Gardeners was endorsed by this branch.

Three members joined the branch at this meeting making a total of 31 paid up members to date.

HENRY GOODBAND, Secy.

NASSAU CO., L. I. BRANCH

At the last meeting of the Nassau Co., L. I. branch, held at Winthrop Hall, Westbury, L. I., Chairman Duthie announced the resignation of John Forbes as treasurer as he had moved from the district. John McIntosh was appointed to fill the vacancy. On the proposal of a member, it was voted that it was the feeling of the meeting that the GARDENERS' CHRONICLE should be owned and operated by the association. The secretary was instructed to write the various branches to obtain their views on the subject. (This has already been carefully discussed by the Executive Board of the association in the past and it was the unanimous opinion that it would be both impractical and impossible for the association to conduct its own official organ, if for no other reason than that its financial resources would not yet permit it; M. C. E.) After further animated discussions, it was announced that the next meeting of the branch would be held at the Parish Hall, Oyster Bay, at 8 o'clock sharp on June 27. Members please take note of this date as it will be the only notice given. Govern yourselves accordingly.

JOHN R. MCCULLOUGH, Sec.

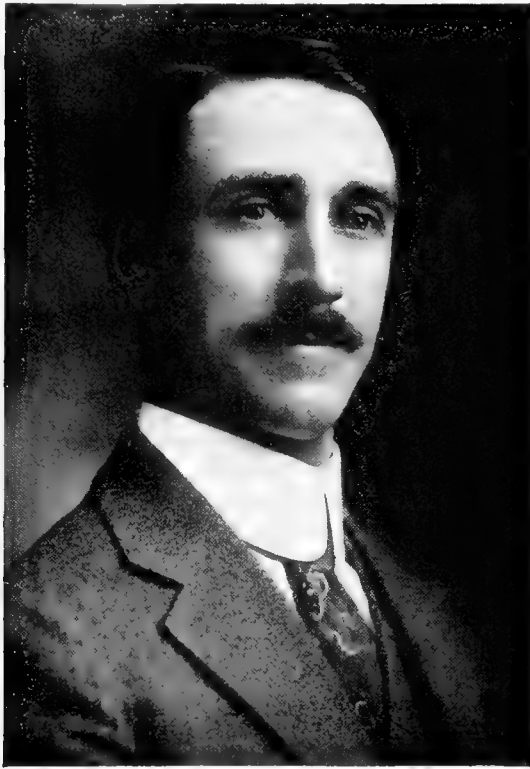
COMING BRANCH MEETINGS

The Cleveland branch will meet at 7 o'clock on June 18 at the Alhambra Restaurant, Cleveland.

The Boston branch is to hold a meeting early in August to give members an opportunity to submit and discuss suggestions to be presented at the annual convention.

PRESIDENT JOHN BARNET

John Barnett, president of the National Association of Gardeners, was born near Grieff, Perthshire, Scotland, forty years ago. From there his family moved to Dougalston, Milngavie, near Glasgow, the residence of T. R. Ker, Esq. where his father is now Head Forester. Mr. Barnett began his gardening career at the age of twelve years, and at fifteen years of age was a full fledged apprentice. He acquired a thorough training on some of the most famous estates of Scotland. (Mr. Barnett states that in those days competition was very keen and one almost required a letter from a minister to get a job.) After satisfying himself that he had acquired about all the experience he could gain, he decided to try the U. S. A. After he had engaged in several positions in Massachusetts, and worked under the guidance of William N. Craig at Faulkner Farms, Mass., the latter recommended him to Mrs. J. D. Lyon of Sewickley, Pa., in September, 1915, for the



John Barnett

superintendent of her estate, which position he now occupies. Mr. Barnett has always taken a live interest in the horticultural activities in and about Pittsburgh, and is a past president of the Pittsburgh Gardeners' and Florists' Club. He is one of the organizers and first full term president of the Sewickley Horticultural Society. Mr. Barnett is a life member of the National Association of Gardeners and of the Royal Caledonia Horticultural Society, a member of of the Society of American Florists, and of the American Dahlia, Rose, Sweet Pea, and Chrysanthemum Societies. While he has the reputation of being a thorough gardener and a capable grower, his active affiliation with many organizations has also endowed him with the qualifications of an excellent parliamentarian.

James Barnett, superintendent of the Asa G. Candler, Jr. estate at Atlanta, Ga. and Lewis Barnett, superintendent of the R. B. Mellon estate, Pittsburgh, Pa., are brothers of our most worthy president.

VICE-PRESIDENT ROBERT P. BRYDON

Robert P. Brydon, Vice-president of the National Association of Gardeners was born in Yarmouthport, Mass., thirty-seven years ago. His father, James Brydon, was gardener to Congressman Simpkins, and later and up to the time of his death, gardener to Mrs. Bayard Thayer at Lancaster, Mass. He was known as an unusually able gardener, and skilled as a grower of exhibition chrysanthemums and water lilies. Robert P. received his training in this country. After a course at the Massachusetts Agricultural College, he was over four years with the Reading Nurseries, Reading, Mass. and then for two and a half years with Edward W. Breed at Clinton, Mass. From there he went to the estate of

Cyrus McCormick at Lake Forest, Ill.; thence to "Glennallen," the estate of Mrs. Francis P. Prentiss, Cleveland Heights, Ohio, where he has been located for the past ten years, first as gardener and then as superintendent which position he now holds.

Mr. Brydon is always prominently associated with the horticultural events in Cleveland, as an active and enthusiastic worker. He is a member of the Cleveland Florists' Club, and of the Cleveland Horticultural Society of which he has thrice been president, and twice treasurer. At the present time, Mr. Brydon is chairman of the Flower Show Committee, always taking a keen interest in Cleveland flower shows.

DOES THE LABOR BOOM BENEFIT THE GARDENER?

With ordinary garden laborers demanding sixty cents an hour and ten hours to the day, many owners of country homes and suburban home gardens have decided that the regular employment of a trained gardener will prove more satisfactory and less costly, while relieving them of the responsibility of personally supervising the work of a garden helper. And so there has been more than the usual demand this season for the experienced gardener on small places.

While some garden owners at first demurred over the pay asked by competent men, when the gardener's side was presented to them, they usually were ready to accept his viewpoint. Others on being asked what salary they would pay, would promptly reply, "Whatever is customary," or "Whatever such a man deserves." Reports that have been received show that the garden owners who are for the first time employing practical gardeners, are quite satisfied with their new experience.

There appear to be some garden owners, however, who have yet to learn that a competent gardener should not be engaged



Robert P. Brydon

as a handy man may be, for the employer should interest himself in first thoroughly investigating the applicant's past experience. And likewise a thorough gardener desires to see the place before he engages for it, so that he may satisfy himself that he possesses the qualifications to accept the position.

There are agencies to which one may phone and state, "I want a gardener, sixty dollars and board. Send one to the place tomorrow." And so the next morning the "gardener" arrives, luggage, and all, prepared for work, but it is found that while he may know something about geese and pigs and some vegetable crops, he possesses absolutely no knowledge of what he was supposed to be engaged for—gardening—and these are the circumstances which cause garden owners to complain that they have such terrible experience in employing gardeners. Their trouble is caused by seeking gardeners in the wrong places.

Rahway, N. J.; George Praster, Montclair, N. J.; Mrs. F. S. Fisher, Trenton, N. J.; Robert L. Roe, Hohokus, N. J.; Charles H. Totty, Madison, N. J. The first regular meeting took place in the Council Chamber of the City Hall in Newark, N. J., when plans for a field meeting in August and the first annual show were discussed. The latter will be held in Newark in the middle of September—date and place to be announced shortly.

Dr. Marshall A. Howe delivered a most instructive illustrated lecture.

This young society has already doubled its membership and shows great promise. Its slogan is "Quality above Quantity" and its object, as incorporated in the Constitution is:

"To stimulate the interest in dahlias; to encourage the amateur; to assist the grower to keep a high standard for varieties originated and grown in the State of New Jersey."

It has affiliated with the American Dahlia Society and plans to assist the latter by taking over all problems relating to the dahlia within the State of New Jersey.

THE FLOWER SHOW

NO ONE could long be a pessimist in the presence of such a splendor of flowers as filled the Grand Central Palace at the Annual Flower Show. If Solomon in all his glory was not arrayed like a single lily of the field, what comparison is to be found for the masses of color which have been made to blossom from like root and stalk under human cultivation? Man has been enjoined by the Great Teacher to forget his anxiety about tomorrow and to fortify his little faith by beholding how the wild flowers are clothed. But the moral of the Flower Show is that if man can in co-operation with the Creator work such miracles in the culture of flowers, what ought he not to do in the cultivation of the faculties of children or even in the improvement of his own perennial self?

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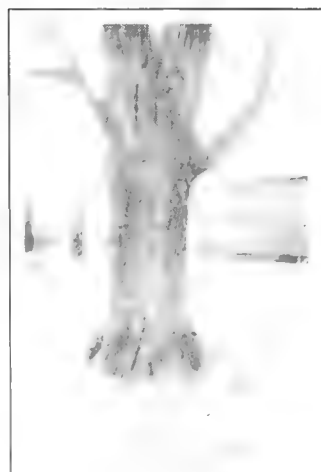
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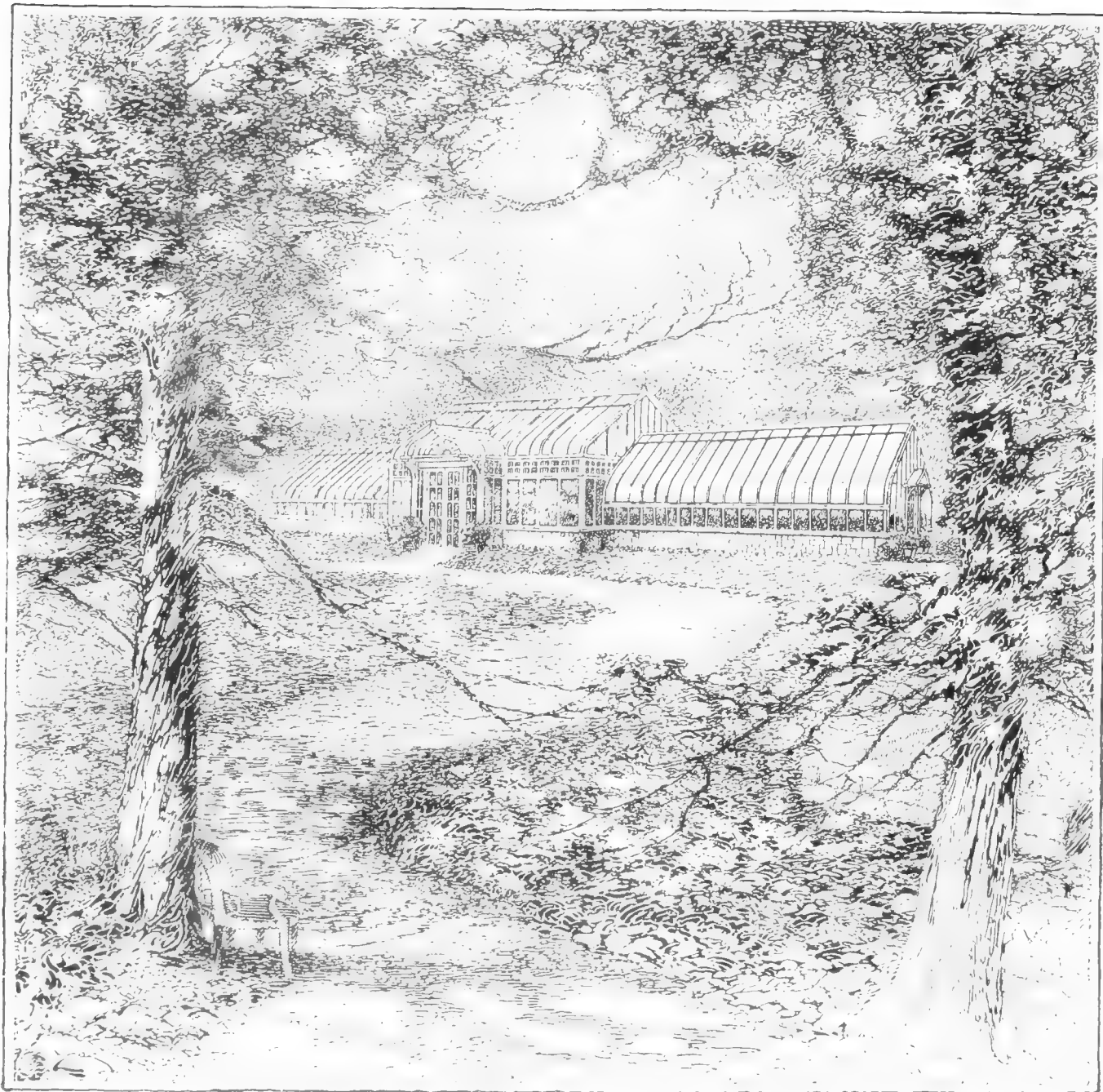
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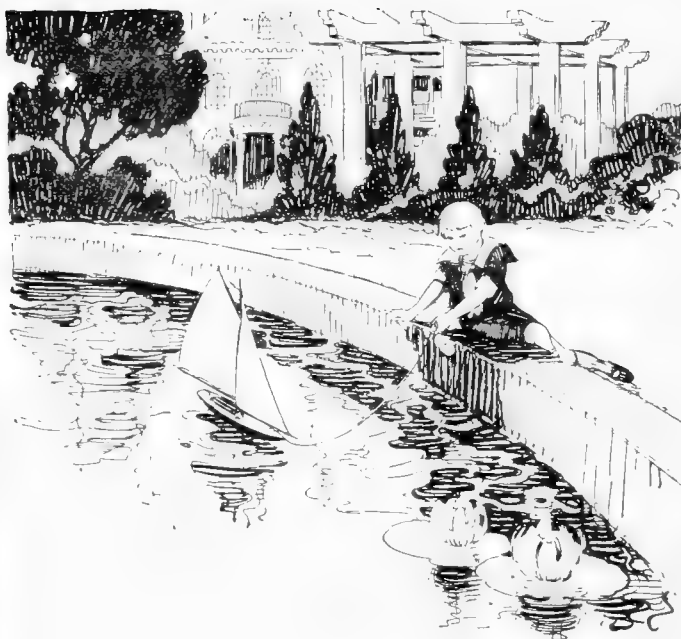
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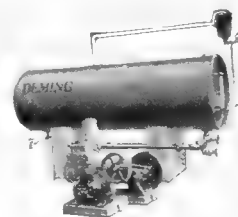
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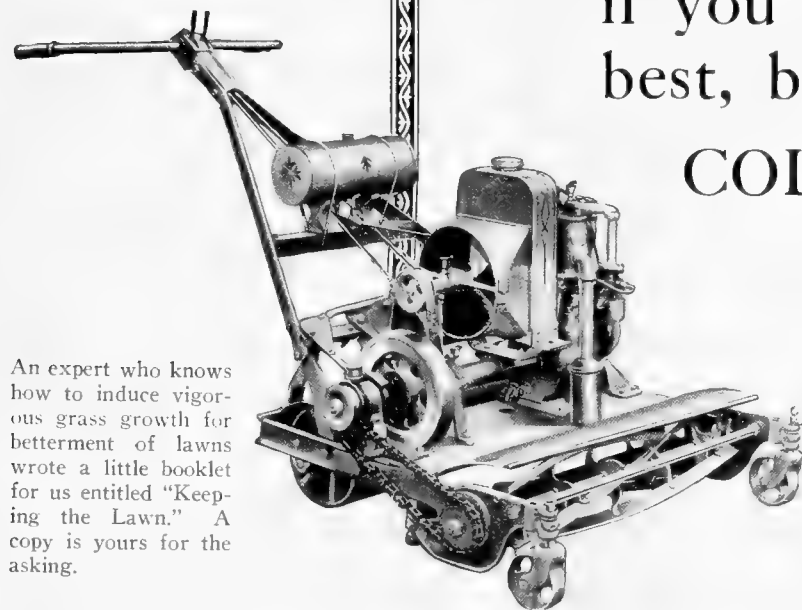
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

JULY, 1923

No. 7

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THERE appears to be a steadily increasing interest in hardy roses in all sections of the United States, and the various "Rose Pilgrimages" planned by the American Rose Society have done not a little to enthuse amateur growers in the Queen of Flowers. Those of us who rarely go afield and do not know what others are growing, or are doing, are apt to lead too self-satisfied lives and to have a somewhat exaggerated idea of our own productions. It is the very best form of horticultural education to do some visiting at rose time and make mental and pencil notes which are bound to prove helpful. I have attended outings where dahlias, gladioli, peonies, iris and Spring bulbous plants were in season but with none of them did the enthusiasm at all equal that manifested in hardy roses. There is such an infinite range of colors and types which are being constantly added to, and the wonderful additions to the hybrid tea, polyantha, rambler, Pernetiana classes and species keep interest keyed up.

The great interest today is divided between the hybrid teas and ramblers; the hybrid perpetuals are year by year being more pushed to the wall. In some respects this is regrettable as for our colder states they are by far the most dependable of our bush roses as they are much hardier than the hybrid teas and are longer lived. The name "perpetual" is something, however, of a misnomer, as with a few exceptions such as Frau Karl Druschki, Mrs. John Laing, and Mrs. R. G. Sharman Crawford, they carry one good crop of flowers in early Summer and bloom rather sparingly thereafter. I have had many plants of hybrid perpetuals which have lived from fifteen to twenty-five years and in some cases even more, in the immediate vicinity of Boston with no Winter protection but soil, which by the way is far the best covering in cold latitudes. This is something we cannot say of the beautiful but more tender hybrid teas. It is true that Gruss an Teplitz, Mme. Caroline Testout and one or two others are as dependable as the hybrid perpetuals, but they are decided exceptions to the general rule.

A hardier type of rose which will be a persistent bloomer and adaptable for culture in our cold northern states would seem to be entirely possible if hybridizers would use the hardiest possible stocks. In the great number of species of roses, both native and foreign, surely one can be found which will satisfy our needs in this respect. We may not be able to get the big handsome exhibition roses we are well acquainted with, and possibly the orange, apricot, old rose, and some other delightful shades would have to be eliminated and blooms of a moderate size, in

many cases carried in clusters, would be given, but some day, it may be nearly half a century away, we shall have such a race which will thrive in almost every state in the Union. There is a great field for hybridizers, and there will surely arise men of the type of the late lamented Dr. Van Fleet, and M. H. Walsh to give us a real American race of hardy roses.

* *

The passage of Quarantine 37 with the debarment of all roses except a very limited number of the newer sorts has naturally stimulated rose propagation in America. California is now the state par excellence for rose production; plants sent from there are of good size, although usually budded much too high. The trouble is that while the manetti stock is now used in the main, there is an evident tendency to speed up production by using such tender stocks as Rose odorata, which can be propagated with remarkable rapidity, and while these roses will no doubt prove satisfactory in the balmy sections of the country they are sure to prove most disappointing in the colder states, and are unlikely to prove of any value in that Atlantic coast section where horticulture has a great number of devotees. It is a fact that much Californian stock is now being planted outdoors in the East; personally I would very much prefer stock budded in New Jersey or some more vigorous climate as more likely to give satisfaction.

Another type of rose has come to the front during the past year or two, and much of it is being advertised and sold for "field grown stock." I refer to greenhouse roses which have done service for several years in beds or benches and were formerly thrown away and burned. These plants are now being dried off and rested for a few weeks, pruned back and sold for hardy stock. I have known these roses to winter over under favorable conditions and give a very good account of themselves the second and third seasons. They can always be depended upon to produce a fine late Summer and Fall crop the same year they are planted. But it is too much to hope that plants which have been forced in greenhouses for, in some cases as many as six years, will prove as satisfactory in the garden as outdoor grown stock. One firm of rose specialists advised me that they had sold 25,000 of these old forced plants as "hardy garden roses" at a flat rate of \$5 per dozen. I consider this a distinctly dishonest practice, one which will do much towards discouraging the culture of roses in the garden. Still another large rose specialist wholesales this discarded stock at \$100 per 1,000, and in small lots at \$3 per dozen. This grower, however, adopts

the more honorable policy of telling purchasers that these plants are good for one year and can then be discarded. As such I can most heartily recommend them.

The Pernetiana type of roses of which Soleil d'Or, introduced nearly a quarter of a century ago is probably the oldest member, has come very much to the fore the last few years. They were originated by that skillful French rosarian, M. Pernet Ducher, from whose hands have come so many good garden roses. By utilizing the brilliant Austrian Copper as one of the parents he has given us a class of roses carrying flowers of exceptionally rich and unusual color, particularly in the copper and apricot shades. Amongst the yellow shades of these, which I have seen in very good condition this season in Massachusetts are Constance, Soleil d'Or, and that wonderful variety, Souvenir de Claudius Pernet, which has attracted more attention than any new introduction in late years. The value of this latter rose in the garden has yet to be demonstrated. Like all of the Pernetiana varieties it is quite susceptible to black spot. Dust spraying is more effective in combating this than any of the liquid fungicides and it is much more easily applied. I have found that by using eight parts of sulphur and one each of lime and dry arsenate of lead, and dusting the roses susceptible to black spot once in two weeks during the flowering season, this unsightly disease can be largely eliminated. This dust spraying has proved very effective in controlling the sooty blotch fungus on such apples as MacIntosh Red and for plums and peaches; in these latter cases omitting the arsenate of lead, which controls certain leaf eating insects on the roses, and using an additional part of lime in its stead.

Harking back to the Pernetiana roses there are a number of copper or apricot shades which are doing quite well in some northern gardens. I doubt, however, whether these will prove long lived, even under favorable conditions, though their exquisite colors will create a big demand for them even if they only last two or three years. Specially fine amongst these the present season are Juliet, Mme. Edouard Herriot (better known as the "Daily Mail Rose"), Miss Lolita Armour, Louise Catherine Breslau, and Arthur R. Goodwin, the newer Souvenir de George Beckwith and Souvenir de Georges Pernet are both lovely, but more time is needed to try them out.

There are now many beautiful and distinct species of roses that amateurs would do well to take up, as they are in nearly all cases of more vigorous habit than the bush roses; they are not adapted for culture in beds in the same way. A sloping bank devoted to the various species is ideal or they have a place in the shrubbery border. Some of these species flower very early but by growing a number of kinds quite a long succession of bloom may be had and many are very attractive when in fruit. *R. Hugonis* since its introduction has been in tremendous demand and is certainly a lovely yellow rose. It is the only really dependable yellow, shrubby habited rose we have apart from the Persian Yellow, Austrian Copper, and Harrison's Yellow. A new Asiatic species at the Arnold Arboretum, *Rosa Ecae* is very promising and flowers even earlier than *R. Hugonis* with somewhat smaller and paler yellow colored flowers. It is also a more vigorous grower and its frequent foliage is a great attraction. This rose will probably be offered in the trade in a moderate way next season. *R. rubrifolia*, a European variety, is very striking in any collection of roses on account of its foliage being tinted with purplish red. *R. setigera*, the well known "Prairie Rose," is splendid for mass effects, as *R. Wichuraiana*, the "Memorial Rose," is for covering bare banks. *Rosa spinosissima altaica* has been dubbed the "Northern Cherokee Rose." It is a very superior form

of the Scotch Rose and carries lovely single white flowers three inches in diameter. *R. multiflora*, carrying clusters of pure white flowers, is well known and deservedly popular, not so well known is *R. multiflora Catheyensis*, a very vigorous grower with clear pink flowers produced in great profusion. *Rosa omeiensis* from Western China is offered in the trade and is one of the best of the newer species, of vigorous habit, its pure white flowers followed by very attractive fruits. These are but a few of the many beautiful species of roses. Particularly striking in the Arnold Arboretum collection at the time of the visit by members of the American Rose Society was *Rosa Arnoldiana*, raised by the late Jackson Dawson by crossing *rugosa* and the old popular hybrid perpetual, General Jacqueminot. This hybrid is of erect habit, very vigorous, and is smothered with large single or semi-double flowers which are bright red in color; this fine variety is offered in the trade.

* * *

A reader of the GARDENER'S CHRONICLE of America has written to me in regards to remarks made in the May issue about one of the species of tulip, *Turkestanica*, throwing several flowers to the bulb, and states that he had noted the same thing in the case of *La Tulipe Noire*, a well known and popular Darwin Præstan, another species, will often throw several flowers to the bulb. The tulip, however, which will the most consistently produce several flowers to the bulb is another inexpensive and popular Darwin, usually called Gretchen, but occasionally Margaret. This pink Darwin is a splendid bedder and the abundance of small side flowers practically hides the soil from view. One or two varieties of the early forcing tulips show the tendency to throw side flowers, but at this time I cannot recall the particular varieties. For bedding purposes the production of several shorter spiked and smaller flowers circling the main stem is a decided advantage, although forcers of tulips for cutting would no doubt prefer single flowers to a bulb. There are no doubt other readers of the CHRONICLE who have noticed the tendency of certain tulips to throw several flowers to a bulb and their experience would be worth recording.

* * *

Very beautiful in early July are the Delphiniums in the hardy perennial borders. They come in an almost infinite range of blue shades. Associated with *Lilium candidum* or that newer but most satisfactory garden lily, *L. regale*, the combination is almost irresistible. There are now many beautiful named hybrids of *D. formosum* which produce the most stately spikes. These are made more a feature of in Great Britain than here, and Americans visiting the big Summer shows over there marvel at the size and magnificence of the spikes exhibited. The British climate is more of an ideal one than ours for the culture of Delphiniums and the bulk of herbaceous perennials, as it has a much lower mean temperature, more frequent rains, and only occasional spells of sizzling heat such as we are subjected to here but their ease of culture is such that anyone can soon have a stunning show if he will care for the seedlings.

* * *

Hardy larkspurs have jumped into favor very much in recent years for forcing purposes and remarkably good spikes were to be seen at the New York show in the middle of March. Forcers of these flowers have their troubles with stems damping off which I will not go into now, and outdoor growers also have some worries when they see stems throwing deformed flowers and many leaves becoming black in color. Plants which have been undivided for several years are most susceptible to this disease. Diseased stalks should be cut off and burned

(Continued on page 174)

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

LATE July and early August are generally quite trying times in the garden. It is probably the hottest part of the whole year, and thunderstorms are frequent, accompanied by torrential rains, which very often do irreparable damage in the garden, unless staking has been properly attended to. Even then, some plants will be considerably damaged by the wind and rain. How often the gardener will have the place in first class shape, with a good display of flowers in the beds and borders, when one of these sudden storms will come up, washing out walks, throwing mud over the plants, and destroying the floral display. My fellow gardeners all have had this experience, more or less frequently, and it takes a philosopher indeed to keep calm on such trying occasions.

The main task in the herbaceous borders from now on will be to keep the soil around the plants cultivated, cutting down plants that have finished flowering, and filling in the gaps with suitable ones from the supply garden. Quite large plants of various annuals may be moved for this purpose. They are better if quite dry at the roots, when they are dug up, but when they are replanted, they should be given a thorough watering. If they are in a dry condition when moved, it is astonishing how little they mind the change. An occasional application of fertilizer helps all the plants, as the manuring that has been done in the Spring very soon becomes exhausted with frequent waterings.

This is a good time of the year to look over the shrubbery. Plants may be getting overcrowded and in the Fall may need transplanting. Dahlias need to be well staked as they are likely to be top heavy and unless they are well tied up storms may break them down. They also need to be sprayed for insects, as their flowering qualities are easily ruined if this is not attended to. As soon as they set bud, applications of fertilizer may also be given. Cultivate them lightly on the surface and water if they get very dry.

See that *Campanula medium* and other biennials are transplanted, allowing them plenty of space between the plants as they do not winter well if over crowded.

By the end of July sow seeds of pansies, daisies, and forget-me-nots for next Spring.

Give the hybrid tea roses plenty of plant food, and waterings with manure water, if plenty of outdoor roses are expected in the Fall. They also need frequent syringings with Fungine to prevent mildew and black spot. To have fine outdoor rose displays as was seen at our convention last year, the plants need as much attention, as is given to those grown on benches indoors. Look over the Rambler roses and cut out a good deal of the old hard wood. Give them also plenty of plant food, to build up the young growths for next year. Give them a tie in occasionally to support the young growths. Pyrethrum if kept from going to seed will flower a second time. This also applies to *Gaillardias* and *Salvia pratensis*, etc. Many outdoor plants are affected by red spider and evergreens especially are better if sprayed with some insecticide as soon as they put in their appearance.

Work in the formal garden will now be routine—picking off dead flowers and leaves, and edging around the beds. Some of the geranium plants may be inclined to run out on to the grass. These may be cut back and used for cuttings. When weeding stir the surface of the beds lightly.

Work in the vegetable garden will consist of hoeing, cultivating and dusting for fungous and insect pests.

Keep up sowings of beans as late as August 15. Sometimes the last sowing is nipped by an early frost, but it is always worth taking a chance. Corn may be planted as late as the last of July. Like beans, it is liable to be injured with frost if it strikes early, especially on low ground. Corn enjoys rich land and plenty of cultivation. The corn borer is very troublesome around here, but I am told that if the tassels are sprayed with arsenate of lead it kills them. Of course, it ruins the stalks for fodder, which is a detriment.

Late celery should be planted after the peas are past bearing. Spraying with Bordeaux should be done to prevent rust, although last year it did not seem to work out. But then, it was an exceptionally wet season. A quick maturing crop may be planted between the rows, lettuce, radishes, etc.

Late cabbages and cauliflower may be planted out as the peas are passing out of crop. A good coating of Scotch soot should be dusted on the rows before planting as root maggots and such like are not happy in its vicinity.

Spray or dust the asparagus bed for the asparagus beetle has been troublesome lately. Be sure to feed this crop heavily while it is growing, which determines the quality next year.

Sow Fall lettuce about the first week in August in a good rich piece of land. Spinach for Fall use may be sown about August 10. It is generally ready to use when the New Zealand Spinach has been cut down by early frost and continues until hard frost.

After the strawberries have finished bearing, plants that are to be carried over should be given a thorough cleaning and fertilizing with bone meal and acid phosphate. Wood ashes also seem to agree well with them. All runners should be removed, except those which are required for forcing next Winter, and planting a new plantation. The runners for forcing should be pegged on the top of small pots filled with loam so that they may get established quickly. In fact, if one has the time, those that are to be planted out are better if treated the same way, as they also establish themselves much faster. A good coating of hog manure is excellent for the land they are to be planted on, which preferably has been broken up sod land in the Spring.

Watch out for any outbreak of the potato bug. Spray for it and also spray for blight. Early planted varieties should now be ready to use, but too many should not be dug at a time, as they will yet continue to grow, just enough for daily use, unless one has to ship them a distance.

As soon as the raspberries have been picked, cut back the canes close to the ground and thin out the young ones, four or five to a plant is enough to leave. Of course, this does not apply to the late fruiting varieties. Go over the fruit trees, when time allows. Pinch back the young growths to four or five leaves except the points of the branches. Take note of any tree that is going too much to wood without bearing fruit, and before it freezes in the Fall give it a good root pruning. Be especially careful to get at any straight tap root and cut it well back.

IN THE GREENHOUSE

The greenhouse requires a good deal of attention this month as a foundation is laid for many plants and flowers that will be required next Winter. It is also an opportune

time of the year to make any repairs that are needed. As time permits, thorough cleaning should be given and frequent dustings of lime under the benches which tends to keep the atmosphere sweet, and also at the same time, kill any slugs that are around. See that the pipes and heating plant is in good repair, as very soon—on wet nights—a little fire heat will be beneficial to counteract dampness.

The chrysanthemums now demand considerable attention. Disbudding of side growths must not be neglected on the single stem plants, as in a very short while they would take the strength from the main stem. Feed them liberally with plant foods in variety, a little at a time and often is better than in large doses. Look out for the least tendency of any plant to turn yellow on the tips, and stop giving plant food, until it regains a normal color, also keep it on the dry side. Syringing the leaves with Scotch soot water adds to the lustre of the foliage. Stop pinching the bush plants about the first of August, and add a few stakes to steady them. After seeing the trellis trained specimen plants at the New York Show last Fall, personally, I have no use for them, they are not a bit natural looking. A well staked plant in my opinion preserves the bush form far better, and is much more pleasing to the eye. Nice dwarf plants in eight-inch pans we find very useful around Christmas. Secure a good batch of cuttings by the end of July, which root outdoors in about three weeks. Then pan a dozen cuttings of equal size and even root action and set them close up to the glass. They will flower about twelve inches high. There are some varieties that never flower, rooted so late in the season, but we have found the following answer the purpose well: E. D. Godfrey, Gaza, Miss Isabelle, Jane Inglis, Mrs. Buckingham, November Glow, Margaret Waite, William Lincoln, Wells' late pink.

We have plants of Allamanda, Ixora, Hoya, Stephanotis and Dipladenia in flower at the present time. A little plant food will keep them growing well into the Fall. They deserve the best of care as they make fine specimen plants.

As Achilleas and Gloxinias pass out of flower, gradually withhold water from them until they are ripened off. Select a dry, warm corner for them as Fall approaches for they will not stand cold even when dried off.

Get the first lot of Frezias started about the end of July. Home ripened bulbs force better for Christmas than those we buy in the seed stores. They like a good leafy, sandy soil and may be left outdoors until they start. Then if put on a shelf in a temperature around sixty degrees, they will come in for Christmas. Secure cuttings of Fuchsias during the last of July. Strong, soft tips make nice specimens by next May, if kept growing all Winter, and are most useful plants throughout the Summer.

The young Cyclamen plants need close watching to have good plants next Winter. Give them a leafy, fibrous loam, fairly rich. They seem to enjoy dried cow manure in the compost, with charcoal and sand to keep it sweet and open. Don't forget to get fresh seeds of Cyclamen in August. Space them equally in a flat filled with fibery loam, having plenty of leaves mixed through it and adding sand and charcoal to keep it open. They do not need to be disturbed until several leaves are formed.

Sow early in August seeds of Calendula, Dimorphotheca, Lupine Hartwegii, white and blue; Stocks and other annuals that are suitable for Winter flowering.

Lachenalia Nelsonii is a nice bulbous plant for Winter flowering. Start the bulbs in August, and leave them outdoors until there is danger of frost. They look well in either small pots or ten or twelve bulbs to an eight-inch pan.

Put in batches of Poinsettia cuttings as soon as they are three inches long, up to the end of August.

Secure bulbs of Polyanthus Narcissi early as possible; they force very early and fill in a gap when flowers are scarce. Besides the varieties, Paper White, Grandiflora and Grand Soleil d'Or, the variety Gloriosa is very pretty. Some prefer it to Paper White, which has been so popular for so many years. If an early tulip is wanted for forcing, Duc Van Thol is about the first that will come.

See that hard wood plants are well watered, as now they root freely and on bright days will dry out often. Frequent waterings exhaust the soil in the pots and stimulation with liquid and other manures is necessary.

Syringe the Camellias well when they need water but do not allow them to get into a wet, soggy condition as it is certain death to the roots. Withhold plant food as soon as the flower buds are set.

Avoid overcrowding plants in the tropical house. They need plenty of room to develop their foliage which is the chief beauty of one section of these plants. By this time of year the compost will be exhausted if they have been rooting freely, and stimulation must be applied to keep up an even growth until the end of the season. Thin out all weak fronds from the center of the adiantum ferns, giving the stronger fronds a chance for a more free circulation of air through them. The slug is an enemy that will soon ruin a maidenhair fern and it requires close watching to keep rid of it. Sprinkle the benches with lime and put a dusting of dry, soft-coal soot around the inside of the rim of the receptacle. This method will generally take care of them, but it has to be done repeatedly.

Have a good variety of various kinds of ferns and Selaginellas. There is nothing more decorative when a group of plants is arranged than the various shades of green of these plants. A well grown, individual specimen of any one of them is always an attraction. The time was when no greenhouse was complete, unless an apartment was set apart for a collection of ferns, and now there are many species which we have not seen for years. Plants in the greenhouse are getting well rooted, and will on bright days, dry out much more often than early in the season. So watch them closely. Dendrobium thyrsiflorum, tensiflorum and Farmeri will now be growing freely but do not overwater until the new roots appear. Some of Dendrobium Wardianum and Primulinum will be finishing their growths and may be removed to a more airy house. Do not withhold water as long as the leaves are green; diminishing it gradually as the leaves begin to get yellow. Cologyne cristata needs plenty of water at this stage of growth and frequent applications of weak liquid manure will also help to strengthen the bulbs.

Cattleya Bowringiana as the new roots appear, will also take more water. This Cattleya, however, will do with less water than many others of the same genus. It is better not to let the water lodge in the center of the young growths. Laelia autumnalis is slow at starting into growth, but develops rapidly after it has made a start. This Laelia likes plenty of light and should be only slightly shaded from the strong sunshine. Weak applications of manure water will benefit nearly all orchids after they begin making new roots, until the completion of growth. They do not like hard water and I believe that the lack of using rain water is more generally the cause of non-success in orchid growing than any other cause.

As soon as melons show the least sign of ripening, stop using any stimulant or liquid manure in any form. Those that have set their fruits, and are in active growth, will take plenty of food. Peaches and nectarines that are clear of fruit should be given a good syringing every bright day. Those that are ripening will have to be left alone until the fruit is picked. Pot fruit which has had its crop picked may now be potted, if necessary. Rub the ball

Ornamental Vines, Their Cultivation and Use

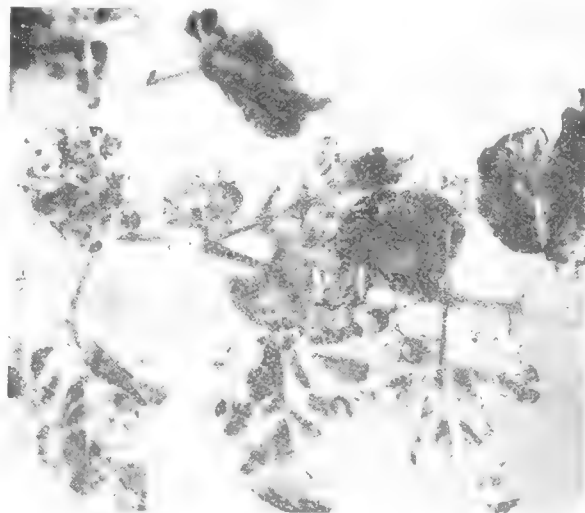
DR. E. BADE

THE use of ornamental vines in the garden depends upon the purpose which they are to serve. Sometimes it is an old tree upon which they are to climb; at times it may be the fence which is entwined with their leaves and their flowers; in another place they cover the bare walls with their foliage; or they provide airy and shady resting places when they spread their tendrils over summerhouse and porch. At times they form living gar-

order; this is also true for those plants used for porch climbers. They should not escape which is the case with far the greater number of our vines. Species of *Caprifolium*, *Celastrus*, *Menispermum*, are not to be recommended for this purpose since these, in the course of the years, form thick, rope-like stems, and in addition to this *Caprifolium* (Honeysuckle) has the disadvantage of being bare of leaves in its lower and central parts, while



Lonicera



Clematis

lands which are very effective and attractive, if they are placed in the right spot. For this latter purpose they are too seldom used, and still how simple and easy is their

the flowers are formed at the tips where they are difficult to see. Beautiful, on the other hand, is *Glycine* (*Wistaria*) with its blue grapelike flowers and feathered leaves.



Lonicera



Clematis

cultivation. Poles placed into the soil equal distances apart so that the first protrudes about half a yard, the second one yard, and the next half a yard again, are connected with galvanized wire. The vines, whether annual or perennial climbers makes no difference, are trained along this wire.

There are but few climbers suitable for planting around summerhouses. Such climbers should be easily kept in

Other desirable climbers for porch or summerhouse are *Aristolochia*, *Ampelopsis*, *Clematis*, the rambling rose, the grape, and the wild grape.

Annual vines are not recommended for the summerhouse as they take too long before they are fully developed, although some of them are exceedingly rapid growers. These are propagated from seeds.

Climbers suitable for shady places are *Aristolochia*,

Celastrus, Ampelopsis, Humulus lupulus, Hedera helix, Akelia, Lonicera. For northern exposures Clematis jackmanni, Cl. henryci, Ampelopsis veitchii, Hedera helix are best adapted. Ampelopsis engelmanni, Dioscorea barbata, Lycium, Periploca do very well when placed towards the east. But sunny places should be selected for Begonia radicans, Clematis paniculata, Lonicera, and the rose.

Such perennial plants are propagated through seeds, shoots, or cuttings as the case may be. Few of them desire a special soil many do well in any fertile soil.

The beautiful effect of the climbing vines when trailing around the house is well known but of its practical value a division of opinion exists, both in builder and in planter circles. Some believe that vine covered walls do not allow air, sunshine, nor light to reach it, and so, because of the dense foliage, tend to keep and store moisture. Mice also are said to use the thicker branches as a bridge to enter the house. Other people believe that the vines keep the moisture away from the walls since they penetrate, with their aerial roots, the cracks and crannies of the wall and draw all available moisture out. At any rate, this divergence of opinion strengthens the fact that regional climatic conditions must be studied before it can be said that it is or is not advisable to plant climbing vines. A damp house will seldom if ever be freed from its moisture when such plants are planted, and so it is impossible for these plants to moisten the walls.

A little known and unappreciated annual climber is the "Wild Balsam Apple" (*Echinocystis lobata*). It is a very rapid grower and produces a dense growth of foliage. This beautiful and decorative climber produces both flowers and fruit at the same time. The tiny short stemmed flowers appear in close clusters. The somewhat cucumber-shaped fruit are the size of a pigeon egg and are protected with soft spines. These plants occur wild in a heavy type of soil along river banks and bottoms in New England, Pennsylvania, and westward. It climbs into trees to a height of from fifteen to twenty feet. In the garden they require a sunny place, are sown in the Spring at the desired spot, and are watered during the dry parts of the Summer.

THE LABURNUMS

LABURNUMS, small European trees or large shrubs, sometimes called "Golden Rain," can furnish gardens in June and July with the handsomest yellow flowered trees which can be grown in this climate. The best known Laburnum in this country is *Laburnum anagyroides*, or as it is more often called *Laburnum vulgare*. This is a native of central and southern Europe and a shapely tree from twenty to thirty feet in height. It is one of the most generally planted and popular exotic plants in England and probably was brought early to the United States where it has been more generally planted than the other Laburnums. Although not always perfectly hardy in Massachusetts large plants are occasionally found in the neighborhood of Boston and these are now covered with their drooping racemes of golden colored flowers. A number of varieties of *Laburnum anagyroides* are propagated in European nurseries but these are curiosities and certainly not better as garden plants than the type of the species. One of the most distinct of the abnormal forms, var. *bullatum*, with its curiously twisted and contorted leaflets is now in bloom in the Arboretum. The Scotch Laburnum (*L. alpinum*), probably so called because it is a most cultivated and favorite garden plant in Scotland, flowers later than *L. anagyroides* and is a hardier plant in this part of the country with longer racemes of flowers. When the plants growing in the Arboretum are covered with their long drooping flower clusters they are objects

of great beauty and it is surprising how little this plant is known to American garden makers. Another Laburnum, *L. Watereri*, a natural hybrid between *L. alpinum* and *L. anagyroides*, is intermediate between its parents in botanical characters and in the time of flowering, and is a beautiful small tree better suited to the New England climate than *L. anagyroides*, and a good plant for the decoration of a June garden. *L. Watereri* appears to be little known in this country. The third species of Laburnum, *L. caramanicum*, a native of Greece and Asia Minor, has been planted in the Arboretum but has not proved hardy here. *Arnold Arboretum Bulletin*.

NEW BABY RAMBLER, CHATILLON ROSE

A NEW baby rambler, Chatillon Rose, originated by August Nonnin, Paris, France, will soon be disseminated in this country by Henry A. Dreer, Inc., Philadelphia. The illustration is of a plant in a six inch pot. It makes



The Chatillon Rose

a compact, bushy plant, literally covered with clusters of cerise pink blossoms, centered with large white eyes. This rambler should become quite a favorite for decorative purposes.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 173)

for there is little doubt but that this fungus carries over in the soil for one or more years just as many other ailments of a fungoid nature do. What can be done to prevent or check it. Eight parts of sulphur to two parts of lime should be dusted through the plants from the time they are a foot high until they near the flowering stage. This same remedy should be used on *Lilium candidum* often seen so disfigured with disease in the garden. *D. belladonna* is somewhat less subject to disease than *D. formosum*, but is by no means immune. *D. chinensis* which is less of a true perennial than the other two, seems to be practically immune.

Some Impressions of Chelsea Show

ARTHUR T. JOHNSON, F. R. H. S.

THE Royal Horticultural Society's Spring Meeting, annually held in the picturesque grounds of Chelsea Hospital in the heart of London, is the Mecca of all garden lovers. This year the weather could hardly have been more atrocious, but not the downpour which prevailed over the first two days, nor yet the oceans of mud, deterred the thousands who had made up their minds, come what may, to attend this great event. Indeed, the gardening public foregathered in the tens of thousands. They came not only from the remotest parts of these isles of Britain and Ireland but from the Continent of Europe and even far-off America was not unrepresented. They came, these pilgrims, to see flowers and they saw them in all the glory of that perfection which is the hallmark of the professional grower's and exhibitor's skill. But here were not only the choicest collections of those great nurseries of the Old Country which have a world-wide reputation, but the priceless gems of many a private garden whose names have rarely, if ever, figured in any trade list and whose faces the vast majority of those present had never before seen.

As indicating the trend of public interest in gardening matters it was noteworthy that the greatest crowds were those that thronged around the exhibits of alpine and other rock plants, many of which were tastefully shown in a natural setting of cleverly-constructed bits of rock-work erected on the staging. Here one noticed how well many of the old and well-tried plants are still holding their own among the new comers, there being extensive displays of those taller Encrusted Saxifrages most of us know so well, the Phloxes of the alpine section, Sedums and Linarias, the more familiar Gentians, the Cheiranthuses, Aubretias, Achilleas, Dianthus and representatives of most other well-known groups. Among this bewildering array of color, to mention but one or two of the choicer things, there were some superb groups of that exquisite Columbine, *Aquilegia glandulosa*, surely the most precious of its race, though the Rocky Mountain species, *A. cœrulea*, runs it close. *Dianthus* "Cæsar's Mantle," an old but now rare plant, was here, and on at least one stand there was a fine carpet of *D. Fosteri*, a brilliant carmine rock Pink with a lead-blue eye. *D. "Spencer Bickham,"* a dazzling carmine, could hardly escape notice and one saw some pretty patches of the true *D. Freynii* and sub-*acaulis*. Here and there the vivid cerise of that little carpeting plant, *Heeria elegans*, from Mexico, made an amazing splash of color. *Phlox Canadensis*, Lapham's var., in almost a plumbago blue, was a striking object, and both the Globe Flowers (*Trollius*) and the double forms of *Meconopsis cambrica* impressed one with their increasing size, substance and depth of colors. There were some admirable groupings of the lovely *Roscoea cautilioides*, of hardy *Cypripediums* and such little Irises as *gracilis* and the tiny *cristata* and *lacustris* which attracted much attention. *Ourisia coccinea*, a bog plant in bright scarlet and several *Dianthus neglectus* hybrids were very striking. Some pretty groups of the somewhat difficult *Houstonias* were among the more notable subjects, there were several mats of the Himalayan *Parochetus communis*, whose pea-shaped flowers are a vivid gentian blue, and one noted the pure white, the pink and the golden

leaved (var. *Treherne*) forms of the common *Veronica rupestris* (prostrata) which, though not new, are still uncommon.

Among the many *Violas*, other than bedding varieties, the lovely *V. gracilis* was as supreme as ever, and the white form (Clarence Elliott's var.) the yellow (Perry's Yellow) lavender-blue ("Lady Crisp") and the jet black ("Black Knight"), with a golden eye were some of the most charming of the *gracilis* type. I also noted some good specimens of *V. bosniaca*, *V. calcarata*, *V. pedata* and the curious Tree Violet, *V. arborea*. That splendid *Armeria*, Bees' "Ruby Thrift," with very large flowers on two-foot stems, was a conspicuous object on many stands, and the fifteen-inch *A. cephalotes rubra*, whose equally brilliant heads are carried on rigid, upright stems, attracted considerable notice. Here and there one came across the blazing crimson of *Pentstemon rupicola* (*Davidsonii*) and the gentle lavender of *P. Scouleri*. *Linum narbonne* was shown in fine form, its sheaves of intense azure contrasting with the glacier whiteness of *L. monogynum*. There were some splendid drifts of *Dryas octopetala*, that first-rate Rocky Mountain Avens, and *Lithospermum prostratum*, "Heavenly Blue," *petræ*, *graminifolium* and others were all on view in the best of condition. The *Ramondias* were also a fine lot, there being in addition to the violet type of *R. pyrenaica*, some forms of this in white and delicate shades of rosy blush, and the very delectable, silver-leaved, *R. Nathaliæ*. *Draba*, "Bees' Yellow," was shown as a large-flowered late-blooming member of that interesting genus, and one admired some excellent masses of *Cotyledon simplicifolia*, *Wehlenbergias* and *Lewisia*s and enjoyed perhaps the best show of *Oxalis enneaphylla*, *O. e. rosea* and *O. adeno-phylla* that has ever been seen. Though rather early for *Campanulas* there were several notable specimens to be seen, of which *C. stensii* nana and the new *C. calcicola*, with large blue bells drooping over a curiously mottled and hairy foliage, were among the most striking.

Primulas were a most enchanting lot—a show in themselves. The rare Chinese *P. chrysopa*, *vinciflora* and *rigida* were especially lovely, the last being, despite its misleading name, a dainty, pale lilac species with the elegance and grace of *malacoides*. The great golden candelabras of *P. helodoxa* were everywhere in evidence, as were the fiery orange-scarlets and glowing crimson-vermilion of "Aileen Aroon," "Red Hugh," *Cockburniana* and others. The exquisite *P. sikkimensis* was shown in perfect form, its fragrance and the drooping citron-yellow bells on their mealy stems expressing the very acme of refinement. Another ravishing beauty was *P. nutans*, whose pendant flowers of rich violet together with the stems are all powdered with silvery meal. The glorious *P. Bulleyana* in a warm apricot, the Beesian hybrids and a host of other good things, along with several attractive groupings of American *Dodecatheons*, would alone have made the visit to this great show a memorable one.

To many visitors to Chelsea the main objects of interest are the Azaleas and Rhododendrons, and to a great extent these shrubs may be said to have dominated a large share of the huge tents as well as the out-door gardens. Though an inclement May had left its stain upon some of these there was a truly magnificent display, the enormous mounds and beds of color creating a spectacle of superb

grandeur. Though space would not permit one even to mention individually a tithe of the gorgeous specimens on view in this section, reference must be made to the wonderful *Rhododendron* Corona, in a full shrimp pink, the blood-red "Lady Constance," "Loder's White" and a new white of the same type, temporarily named "Snowflake." "Bagshot Ruby" and "Brilliant" were still conspicuous among the richer crimsons and that good old variety *R. fastuosum* fl. pl. was well represented in bush and standard form. Kurume Azaleas and other Japanese kinds were well displayed, as were those of the mollis, sinensis and the late, double-flowered rustica set. The well-known "J. C. van Thol," "Anthony Koster" and the newer multatuli, with very large trusses in a flaming orange-scarlet, were among the more striking of these impressive throngs of blossom. Japanese Mayles and Wistarias, Camothuses in variety, Kalnias and many conifers were conspicuous in the shrub sections, and such *Rhododendron* species as cinnabarinum, decorum and yunnanense magnifica were staged. *Fremontia californica* and the rare *Dipelta floribunda* were both shown full of blossom; the fragrant *Daphne encoreum* and the more uncommon *D. Genkwa* were on view, and many who had not seen *Potentilla Farreri* and the newer *Leptospermums* in bloom here saw these attractive shrubs in perfection. On one stand alone there were some two dozen distinct species and varieties of Brooms exhibited, including *Cytisus Dallenmorei*, crimson and purple, the lovely *C. sulphureus*, "Ivory," and the many delightful parti-colored forms of the purpureus and andreae class, many of these being sent out as standards. When I add that in addition to all these (and I have not mentioned a fraction of the exhibits) we had the productions of those growers from S. W. England who are enabled to exhibit from the open air and in full flower such shrubs as *Embothrium coccinea*, *Eucalypti*, *Pittosporums*, *Clinthus*, *Tricuspidarias* and many other tender subjects, one may perhaps imagine the wealth of color and variety which this show afforded.

The greenhouse, or stove, plants comprised an exhibition of vast dimensions in themselves and the same must be said of the Carnations and Pinks, of which there was a ravishing display, especially of the now popular Allwoodii class. Against a background of black velvet several tiers of superb Carnations shown by the President, Lord Lambourne, made an impression one will not soon forget. The entries in Clematises from one firm alone covered a space of some five hundred square feet, nearly fifty distinct varieties being staged in faultless condition, and though one hardly expected much in the way of Roses during the last days of May there were some magnificent groupings of Ramblers, Climbers, Baby Polyanthas, Yellow Banksian and others. From one well known Belfast nursery came an exhibit of no less than 10,000 sprays of Sweet Peas in faultless condition, immense in flower and of almost every conceivable tint, these being rivalled, but not eclipsed, by the sheaves of Lupins and Antirrhinums which made veritable banks of color from floor to canvas. Oriental Poppies also made a brave show, some of the dwarf and intermediate forms being very delightful, and in Peonies one was impressed by the beauty of extensive arrays of the uncommon *P. officinalis lobata* whose gorgeous crimson single blooms have a large central tuft of golden yellow. The Eremuri (Fox Tail Lilies) also created much attention by their majestic spires of blossom, and the exhibition of Irises produced a perfect galaxy of color, among which the newer forms of Spanish Iris, the June-flowering varieties of the Bearded section and the Siberians were particularly good.

Among the hardy *Liliums* one noted the now popular *L. regale* probably the most beautiful of all recent introductions. *L. Farreri* was here also, a most chaste little Lily whose pure white reflexed petals are spotted with violet. There were some extensive arrays of the orange-buff, *L. elegans*, "Orange Queen," the very dainty *L. Willmottiae* and the Nankeen Lily (*L. testaceum* or *excelsum*) whose ivory flowers are held in great clusters at the head of six-foot stems. One specialist in *Delphiniums* showed sixty distinct varieties, the splendid colors of the noble spires of bloom, some of which rose to nearly ten feet high, affording a most sumptuous, Oriental effect.

Not less interesting to many were the gardens outside the tents. The day before the show the several acres devoted to these were a quagmire of grimy turf, but by the following noon all this had been transformed as if by magic into smiling gardens of every conceivable style. There were rock gardens, sunken gardens, formal gardens, Spring gardens, blue gardens, water gardens, Dutch and Japanese gardens and many others, all looking much as if they had been here for years instead of a few hours. The rock gardens were particularly good. For the construction of some of these many tons of mountain turf and carefully selected rock had been brought long distances by rail or road, the latter without the mosses or lichens of Nature's adorning suffering so much as an unsightly scratch! These were disposed with consummate cleverness, suitable plants set in their chinks or in the accompanying slopes of sod, whilst rivulets of water and sparkling pools fringed with aquatic plants gave life and movement to the scene. Some of the representations of alpine meadows were also especially attractive, the well-known enthusiast responsible for these having conceived the idea that one might with greater interest and delight have a "lawn" of suitable alpine plants, all set close together, than the more commonplace stretch of grass. The examples shown of these flowerful meadows were certainly fascinating and, even if the idea does not suggest practical usage, there is little doubt but that it will develop as a phase of alpine gardening which may perhaps be truer to Nature than those regiments of stones which so often dominate the rock garden of the unskilled amateur.

IN THE GARDEN AND GREENHOUSE

(Continued from page 172)

down enough to go into the same size pot, if possible. Use a good, strong loam and pot quite firmly. Keep the syringe going on the plants as soon as the operation is finished, and never allow them to get dry, as good root action is essential, before the leaves fall. Examine the roots of any early vines that are clear of fruit. If they have been allowed to go down too deep in the border, they by careful work can be lifted. Uncover them carefully and lift the roots up near the surface of the border working tough, sod loam under them. Spread them out equally, just covering them with some of the broken up turf. We believe the reason that the roots of vines very often go down too deep is that during their growing season, they do not get enough moisture near the surface of the border and feel their way down where it is more damp. Grapes take great quantities of water while they are in active growth, and the surface of the border should always be quite moist. A good coat of Scotch soot scattered on the grape border just before the fruit begins to color will help the coloring. Give the borders plenty of water, until the fruit ripens but discontinue syringing. Some of the varieties, such as "Madersfield Court," as they near ripening need to be kept somewhat drier at the roots or the berries are apt to crack.

The Cultivation of Acacias Under Glass

THOMAS ROLAND

ACACIAS do equally well in pots, tubs, or when planted in beds and can be trained and shaped to any desired form or to fit any and all positions. All thrive under approximately similar conditions of soil, temperature, light and moisture. A sandy or gravelly loam, with some cow manure added, makes a suitable compost for them. They require an abundance of sunshine and fresh air and plenty of water when well established and making new growth, but they cannot endure sour soil or stagnant moisture, and it is essential that the plants, whether growing in beds, pots or tubs, should be carefully and sufficiently drained. I prefer to grow the



Acacia pubescens
John Bulley

plants under glass continually, because they can be better and more easily controlled.

Practically all my plants have been raised from seed or cuttings and grown on under the same general treatment. With one or two exceptions they all root easily from cuttings of half-ripened wood. The latter part of October is usually a good time in which to put in a batch of cuttings because from then on the temperature can be easily controlled. If the cuttings are placed in pots or pans of sandy soil and kept fairly close, in a temperature of about 55 to 60 degrees, they should root in from eight to twelve weeks, depending upon the variety and on the condition of the wood. Cuttings of *Acacia pubescens* may take six months in which to root. Cuttings made of new growth after plants have been cut back may also be put in in the Spring. As it is not, however, easy to control temperatures at that season, I believe more uniform success is likely to result when the cuttings are put in in the Fall.

Perhaps the easiest method of raising stock is from seeds which are freely produced by cultivated plants. Seeds sown in January will produce nice little plants in 2½ or three-inch pots by the end of the first year, after which they grow quite rapidly. It is a good plan before sowing the seed to pour over it water heated to just below the boiling point and allow the seed to remain in the water over night, thus making sure the seeds do not become dry before they are sown. After sowing, the seed should be placed in a temperature of about 60 degrees. As plants raised from seed show much variation, it is desirable when a special variety is needed to propagate it either by cuttings or by grafting.

As soon as our plants have bloomed they are pruned into whatever shape or form is desired. Those requiring potting are attended to at the same time. We find the plants grow as freely in tubs as in pots and that the tubs are much more suitable and better than pots in every way. After pruning and potting, it is best to keep the plants, especially those having been much disturbed at the roots, slightly shaded from bright sun and frequently given a light spraying. They should be placed where strong draughts cannot reach them until they have made new roots. After they become well established they should be given ample space so that they will receive plenty of sunshine and plenty of air.

At no period do Acacias thrive in a moist atmosphere. During the period when they are getting plenty of sun and air it is well to spray them overhead two or three times a day. Several times weekly it is well to give all plants a very hard and thorough syringing. We find this is sufficient to keep the plants free of insects. In the Fall when the plants have set their buds, spraying should only be done on fine days and not too frequently, but it will



Acacia dealbata

be found advisable to give all plants a hard syringing at least once a week until Winter.

In case the wood of any plant has become unduly hard because of defective roots, it is advisable to keep it on the least sunny side of the house and perhaps give a slight shade during the brightest portion of the day.

Plants that were not repotted in the Spring may need feeding during the Summer and practically all plants that are well budded and have not made an extra heavy rank growth are, I find, benefitted by a feeding of cow manure water.

It is possible to cut Acacia flowers during every month in the year, but I do not believe it is worth while to attempt to have flowers during June, July, August, and September, because during these hot months they are apt

to lack substance and to be off-color. The varieties named in this paper are at their best from November until April, and on several occasions all of them have been exhibited in full flower and in fresh condition in the month of April. This is easily accomplished by keeping those varieties which would naturally flower during December, January, and February in structures that can be kept at a temperature between 32 and 40 degrees. I might mention here that my entire collection has been exposed, for a period of fifteen hours, to a temperature ranging between 30 and 25 degrees, and so far as I have been able to judge the health of the plants was not affected.

Acacias are at the height of their beauty during the cold and gloomy season when flowering plants are scarce but much in demand. They are quite easy to grow and, as compared with most other plants, not expensive because they thrive in a low temperature. When grown in beds in large glass structures, little labor is required to keep them in a healthy condition. There are many large glass houses in this country admirably suited for the growing and display of Acacias. Could anything be more wonderful and interesting than to see one of these completely filled with Acacia plants in full bloom?

When out of flower the great variety of foliage, both in form and color, makes the Acacias one of the most useful and beautiful of all plants. Some varieties have a blue foliage equalled only in the finest blue spruces. Every shade of green, from the darkest to the palest, is included in the Acacia family. As compared with palms and ferns, which as a general rule are to be found growing in such houses, Acacias would prove easier to manage and more economical and would attract interest and give pleasure to a greater number of persons than the plants usually found in most large conservatories.

Briefly, I would call attention to what I consider the three most valuable species of Acacias now in cultivation. They are *A. pubescens*, *A. Baileyana* and *A. dealbata*. These three species in my judgment are the most beautiful in cultivation and are the most useful and suitable either for cut flowers or as plants for conservatory or house decoration. *Acacia Baileyana* is the earliest of the three to flower and may be had in bloom for Christmas. There are several forms of this species differing distinctly both in form and in date of coming into blossom. This is also true of *A. dealbata*, which flowers a little later. *Acacia pubescens* is the last of the three to come into bloom, and is considered by many persons to be the most beautiful of all Acacias.

GOOD SWEET PEAS WITHOUT DISBUDDING

MUCH has been written in recent years in favor of the Cordon system of growing Sweet Peas, but the continued shortage of suitable help for garden operation and the recent unfavorable seasons, have had a discouraging effect on many of our best growers.

The fact that splendid flowers can be grown without disbudding the vines has often been demonstrated, and while the flowers grown on undisbudded plants lack the substance of stem and bloom that others grown on the Cordon system possess, they also lack the coarseness of the better grown stock.

To cite an instance of this kind a display of Sweet Peas grown naturally was exhibited before one of our Florists' Clubs last June, and was conceded to be the finest showing of these flowers ever seen by the Florists present at the meeting.

To insure the best success, seeds of the finest varieties should be sown during the Fall, or early in the New Year, the time depending much on the appliances the grower has at his disposal. Seeds sown during October and

wintered over in a cold frame will give the finest results if the plants are grown sturdily by means of careful ventilation in favorable weather, and given room to develop properly.

Many growers still stick close to the method of sowing and growing on in pots, but better germination can be secured from sowing in flats, and the ultimate results will be as good from plants grown on in flats.

Where pots are used, four or five inch pots should be used to finish off the plants before planting out in Spring; if flats are used, the plants should be transplanted three inches or more apart, and the flats should be four inches deep.

Plants well grown in pots or flats are often furnished with several good stout branches and it does not require a great deal of intelligence as regards horticultural matters to realize that plants of this stature require a good deal of room for future development.

They should be planted not less than a foot apart, and with the best plants, eighteen inches is not too much room to give the plants in the row, and if double rows are planted, which is a good plan to adopt, the rows should be from fifteen to twenty-four inches apart.

Usually the one bone of contention is the matter of supports, good twiggy brush from birch, hazel, elm or dogwood is beyond question the most suitable as regards the comfort of the plants, for if the rows are run north and south, the brush gives a very beneficial shade to the plants during the middle day, and if the brush is neatly arranged, little objection can be made on the appearance of the arrangement. It is a good plan to run two or three wires, drawn very tight, along each side of the brush to help keep the sides in shape and the tops and sides should also be trimmed neatly.

Where suitable brush cannot be secured, or there is an objection, on the part of persons in authority, to the use of brush, other methods must be adopted; poultry wire is no doubt the neatest support, but most gardeners wisely avoid it.

A method we recently adopted which gives pleasing results is to use long cane stakes as for Cordon work, placed six inches apart in the rows, and secured to an overhead wire or wood support, and sloping slightly inward the plants are planted between the stakes, and instead of being disbudded and tied singly to each stake, they are allowed to branch out, and are kept upright by looping and interlacing white string along the stakes. As the plants grow stronger, good strong twine is run loosely along each side and looped in to the stakes. With well grown stock the plants soon fill up the space between the double row and present a pleasing effect, while the length of stem and gracefulness of bloom leave very little to be desired.

Plants grown in this manner will stand considerable feeding in favorable seasons, and are greatly benefitted by a mulch of partly decayed leaves or old manure.

Give a good cultivating weekly during the early part of the Summer until the mulch is applied and this should not be allowed to mat down and choke the soil.

If the grower wishes, a partial disbudding may be made by early thinning the vines, and with some varieties this will give excellent results.—CHARLES ELLIOTT in *American Sweet Pea Bulletin*.

A CORRECTION

THROUGH a typographical error which was overlooked at the time, the number of Darwin tulips used in constructing the John Scheepers, Inc., bulb garden at the last Spring Flower Show was given as twenty-six hundred instead of twenty-six thousand, on page 156 of the June issue.

American Crab Apples

AMONG the small North American trees still imperfectly known to botanists and wood-lovers and scarcely known at all to gardeners are the different species, varieties and hybrids of the Wild Apple. Nine species of these trees are now recognized with several varieties, and two hybrids and their varieties. They have white or pink fragrant flowers which do not open until the leaves are partly or entirely grown, and green or pale yellow fragrant fruit which hangs on slender stems and, with the exception of that of the species from the north-western part of the country, is depressed-globose, usually from an inch to two and a half inches in diameter and



A branch of Bechtel Crab

covered with a waxy secretion. All the species spread into thickets and are excellent plants for the decoration of wood-borders and glades. Some of the species have only been distinguished in recent years, and although the species and many of the varieties are now growing in the Arboretum several of these have not yet flowered; only two or three of these Crab Apples can be found in commercial nurseries.

MALUS GLAUCESCENS, which is named from the pale glaucous color of the under surface of the leaves, is the first of the American species to flower at the Arboretum. It is a shrub usually rather than a tree, not more than fifteen feet high, with stems four or five inches in diameter. The flowers are white or rose color, up to an inch and a half across, and the pale yellow fruit is often from an inch to an inch and a half in diameter. It is common in several western New York counties and ranges to western Pennsylvania, southern Ontario and Ohio, and occurs on the southern Appalachian Mountains to northern Alabama.

MALUS IOENSIS begins to open its flowers several days later than *M. glaucescens*. This is the common Crab Apple of the northern middle western states, and in a number of varieties has a wide range southward through Missouri to western Louisiana and Texas. It is a tree sometimes thirty feet high with a trunk often eighteen inches in diameter, a wide open head of spreading branches and usually incised leaves tomentose on the lower surface, flowers often two inches wide with white or rose-colored petals, and fruit hanging on stout hairy stems, and up to an inch and a half in diameter. The common form of this tree in southern Missouri, Arkansas and eastern Oklahoma (var. *Palmeri*), a small tree with spiny

branches and smaller leaves, is flowering in the Arboretum for the first time this year. A form of this tree with double flowers (var. *plena*), the Bechtel Crab, named for the man who found it several years ago growing in the woods in one of the western states, has opened its pale rose-colored flowers which look like small Roses. When in flower this is one of the popular trees of the Arboretum, judging by the number of persons who want to get close to it. This double-flowered Crab can now be found in many of the large American nurseries, but these nursery trees are often short-lived, probably because the common orchard Apple on which they are usually grafted does not suit them as stock. Persons buying the Bechtel Crab should insist that it be grafted on one of the American Crab Apples, the best for the purpose being the single-flowered type of *M. ioensis*.

MALUS CORONARIA, sometimes called the Garland Tree, is the common eastern species, although it does not approach the coast north of Pennsylvania and Delaware and ranges west to Missouri. It is a beautiful tree sometimes twenty-five feet high with a short trunk, pink flowers rather more than an inch in diameter and depressed globose fruit. From *M. glaucescens* it is distinguished by



Sargent's Crab

the green under surface of the leaves, and from *M. ioensis* by the absence of pubescence on the leaves, fruit stalks and young shoots. The calyx on one variety (var. *dasy-calyx*) not rare in Ohio and Indiana is thickly covered with white matted hairs. A form with long acuminate leaves (var. *elongata*) which sometimes forms dense impenetrable thickets grows in western New York to Ohio, and on the southern Appalachian Mountains from West Virginia to North Carolina. Recently a double-flowered form of *M. coronaria* has been found growing in the woods near Waukegan, Illinois (var. *Charlottæ* or the Charlotte Crab). The flowers are larger and whiter than those of the Bechtel Crab, and there is no reason why the Charlotte Crab should not become as great or a greater garden favorite. It is now growing in the Arboretum but the plants are too young to flower.

(Continued on page 180)

THE SHOOTING STARS

THE genus *Dodecatheon* belongs to the Primula family, and is confined to Western North America, although one or two species are found in North-Eastern Asia by the Behring Straits. They are all hardy herbaceous perennials, with tufts of oblong spatulate leaves of varying shapes and sizes, and scapes bearing umbels of drooping flowers on long pedicels. The petals are long and narrow and reflexed like those of the Cyclamen. They are usually found in moist, shady positions, and are well adapted for the sheltered parts of the rock garden or shady border. The soil they prefer is a loamy one, rich in humus, with plenty of moisture in the growing season. Nearly all the different kinds are easily propagated by division of the crowns after the leaves have ripened off, or the operation may be performed in early Spring.

D. FILIPPEUM (syn. *D. INFLIGRIFOLIUM*).—This pretty little plant is a native of the Rocky Mountains, where it is found in moist, open woods. It has narrow spatulate leaves, quite entire, from which, early in May, are produced scapes one foot or more high, bearing umbels of eight to ten flowers. These vary from rosy purple to pale lilac, and have a white base with a yellow ring.

D. LANCEOLATUM (syn. *D. MACRANTHUM*).—A very distinct plant, one of the largest and strongest growers in the family. It has leaves nearly a foot in length, lanceolate in shape, and tapering to the base, while the scapes often reach a height of two feet in favorable situations. On these the pink or rosy purple flowers are borne in umbels of four to six in late Spring. It is usually found in wet places on the mountains of East Oregon and California.

D. MEADIA.—The most popular member of this genus, easily grown and very free-flowering, is a beautiful plant for the shady border. It produces an abundance of long, broad leaves and numerous scapes up to two feet high, each bearing twenty or more large pendulous reflexed flowers during the month of May. It was one of the earlier kinds to be introduced, having been grown in the year 1709 in the garden of the Bishop of London. It is named in one of the earlier volumes of the *Botanical Magazine*, t. 12, and is named after a Dr. Mead. In its natural habitat it is confined to the country west of Pennsylvania, and usually grows on moist cliffs and drains. There are numerous color forms of this species grown in

gardens, varying from rich rosy purple through all intermediate shades to pure white.

Many of these Dodecatheons make excellent pot plants for use in the alpine house. The roots can be potted up in the Autumn, and the pots should be plunged in an ash-bed in a sheltered position where they can receive attention. During the month of May they will produce their flowers freely and prove a welcome addition to the other plants in bloom at that season.—*The Garden* (British).

AMERICAN CRAB APPLES

(Continued from page 179)

MALUS ANGUSTIFOLIA is the last Crab Apple in the Arboretum to flower. This is a tree sometimes thirty feet tall with a trunk eight or ten inches in diameter, wide spreading branches, bright pink exceedingly fragrant flowers an inch in diameter, and depressed-globose fruit. From the other species it differs in the only slightly lobed or serrate leaves on the ends of vigorous shoots and in the rounded apex of the leaves on flower-bearing branchlets. *Malus angustifolia* is a southern species which naturally does not grow north of southeastern Virginia and southern Illinois, ranging to northern Florida and western Louisiana. Plants raised here many years ago from seed gathered in northern Florida are perfectly hardy in the Arboretum where they bloom every year late in May and have proved to be handsome and valuable.

MALUS SOULARDII, which is believed to be a natural hybrid between *M. ioensis* and some form of the orchard Apple (*M. pumila*) which, not rare and widely distributed in the middle west, is a tree as it grows in the Arboretum, nearly as broad as it is high with spreading, slightly drooping branches. Last year it was thickly covered with its pale pink fragrant flowers, which, for ten days at least, made it one of the most attractive objects in the Crabapple Collection at the eastern base of Peter's Hill. This year it has bloomed only sparingly. It is a curious fact that *M. Soulardii* flowers in the Arboretum fully two weeks earlier than either of its supposed parents. Several varieties of Soulard's Crab are distinguished by western pomologists. Some of them are in the Arboretum collection, but the "Fluke Apple" is the only one which has flowered here yet. This resembles Soulard's Crab in size and shape, in the color of its abundant flowers, and as an ornamental plant is of equal value. *Arnold Arboretum Bulletin*.



FIG. 1. A large collection of *Dodecatheon* plants, Peter's Hill, L.H. Coes, Park Supervisor. This is one of the interesting features of the garden shown at the annual exhibition at Peter's Hill, August 14, 15, 16, 17.

The Trend of Modern Gardening

WHEN one considers how easily we parted with the carpet bedding style of gardening which prevailed in mid-Victorian days, it comes as somewhat of a surprise to realize that the conventional herbaceous border is still with us and alive and well, writes A. T. Johnson in *The Garden*. This not only because the latter is in many respects no less formal than the old bedded-out arrangement, but also because of the great expense that is entailed in its upkeep. In its orthodox form there is no part of the garden so costly to maintain as a herbaceous border, both in regard to material and labor. Yet, while so many gardens, large and small, are still bearing unmistakable indications that wages and general maintenance remain high, that portion of them which entails the heaviest outlay in time and money is suffered to remain.

There is, however, another point to be considered. I have drawn a parallel between the herbaceous border and the formally laid-out bed which may seem unjustifiable to some; but, as a matter of fact, there are probably not many people, among those who really think about such things, to whom the average border of perennials is the satisfaction that one is led to assume that it is. Indeed, there are symptoms which show that a revolt against the border of this kind has already set in. In not a few gardens it has already ceased to exist, and not only on the score of expense, nor yet because its undoubtedly splendid effect has produced a sense of satiety that is shared by owner and gardener alike. The typical herbaceous border seems likely to follow the carpet-bed because, like the latter, it is wanting in those attributes which are the final and enduring test in all sound gardening, viz., interest in the individual plant rather than the mass; a felicitous treatment of subjects which is the antithesis of formal arrangement; and the impression of permanence, which is one of the greatest lessons we may learn from plants in the wild state and the lack of which is the herbaceous border's most notable failing.

A momentary consideration will reveal the fact that although the bulk of the plants with which the average herbaceous border is made are termed perennials, they are less permanent in one sense than a bed of annuals or "half-hardys." That is to say, the vast majority of them have but a comparatively brief flowering period, which means that gaps in the ranks must be filled up or grown over by others set in with that object in view. Then, most of our hardy perennials do forfeit their claim to what is suggested by that term by demanding frequent lifting, breaking-up and replanting. That they would prove their perennial nature without this attention may be true enough, but in so doing they would quickly deteriorate and eventually lose their characteristic vigor and form. Wherefore, regarded from such points of view, the border of perennials is of anything but a permanent nature. It is much more akin to the shelves of a conservatory than anything else in the garden.

It may be thought that I lay too much stress upon this matter of permanency, or the lack of it; but to anyone who gives the subject a thought it will be manifest that therein lies the essential difference between the gardener who plants for a season a bed or a border, his sole object being to create a certain definite display for a definite period and the man who puts in a plant or a tree which he hopes will become established and remain "a joy for ever," not as a part of a whole, but for its own sake. The one may be fully justified in maintaining that he derives as much pleasure out of his squad of Tulips or carefully screened fancy Pansies as the other gets from his odd patches of

Anemone and Primula interspersed with Rose species and a few other choice shrubs, but the sentiments which inspire each of these respectively are as wide apart as the Poles.

The sort of border which promises to supplant the orthodox type is furnished with individual plants rather than groups. I have no quarrel with the latter where they are desirable, as often they are, but would avoid them where they are to be to the whole what the marble chips are to a piece of mosaic. There are fine old gardens in this country where almost every plant or shrub is an individual and something more. It possesses some special history or interest in addition to its own peculiar beauty or merit, and rather than enthuse over the latest creation of the hybridist's art the owner of such a garden will, as likely as not, point out with keener pride some old variety or species one of whose most cherished attributes is that it is "out of cultivation." We may not all be able to fill our borders with rare treasures, nor would it be desirable to do so. A new Delphinium of merit has as much right to a place in our soil as a bush of Lavender which has been in cultivation with us for nearly four hundred years.

However, to describe the lay-out or the contents of an informal border would be hardly practicable, for each one will be the outcome of the owner's individual taste, a reflection of his individuality, and here, again, you have a clear line of demarcation between the herbaceous and what I have called, in the absence of a better term, the mixed border. The former is, generally speaking, manifestly the result of a carefully worked-out design, possibly the exact replica of one of the map-like plans one sees in nurserymen's catalogues, whereas the latter is as far removed from any indication of such design as is a stretch of moorland or a hedgerow bank. Even though maturity and permanence may be among the most abiding charms of this unconventional border of plants and shrubs, grasses and bulbous things, it is the absence of conscious effort which is, after all, its highest feature.

RAMBLING REMARKS ON PLANTS

SOME one recently asked us whether any of the Dogwoods bore white berries. Yes, though most species of Dogwoods, for example, *Cornus florida*, *C. canadensis*, *C. mas*, bear red berries; *C. alba*, *C. asperifolia* and *C. paniculata* bear white fruit. Of the other species of *Cornus*, some bear pale blue, others light blue; some lead colored and others deep blue fruit. Judged therefore from the color of its fruits, the Cornel may be regarded as a patriotic shrub, for it represents all the colors of our national flag.

Among the several candidates for the honor of being selected as our national flower, *Kalmia latifolia*, mountain laurel, has been for a long time conspicuous, but as far as we can learn, it has never been given that distinction by a national vote. The chaste beauty of its flowers, varying from deep rose to nearly white, makes this shrub a prime favorite with all who love to gather wild flowers in the "merry month of May." Why has it not then been adopted as our national flower? We cannot answer the question for the masses, but our vote would be against it for one reason; namely, though all of its parts, wood, foliage, flower and seeds are harmless to the touch, when taken internally, they contain elements which place them among the deadliest of our vegetable poisons.

He who waits to do a great deal of good at once will never do anything.—Samuel Johnson.

Foreign Exchange Department

BERBERIS NERVOSA.—This charming little shrub, a native of Western North America, belongs to the Mahonia group, having beautiful pinnate leaves, each often from twelve inches to sixteen inches in length, and of a coppery-purple color. The flowers appear in racemes about eight inches long, and are rich yellow, the unopened buds orange, and very beautiful as they rise from among the coppery leaves. It is a sun lover, and as it rarely exceeds eighteen inches in height forms an excellent subject for placing in the foreground of choice-flowering shrubs, or even on the large rock garden, where its distinct features attract attention at all seasons of the year. *Gardening Illustrated.*

THE FOAM FLOWER (TIARELLA CORDIFOLIA).—This pretty North American plant is aptly named the Foam Flower, for when growing in bold masses the creamy-white blossoms, when seen in the near distance, seem to suggest the foam or spray of a turbulent sea. It is so generous a bloomer when in a favorable situation that it is quite one of the most valuable



Gardening Illustrated.
The Foam Flower

of all showy rock plants, especially where striking effects are the desideratum. The foliage, too, is elegant in outline, while the bronze coloration with which it is splashed forms with the flowers one of those pleasing contrasts which Nature so often creates on the same plant. Although this plant was introduced into this country nearly two hundred years ago, it has not become so common in gardens as one might well have expected. Yet it is one of the easiest subjects to manage, and is as hardy as a Primrose. Any ordinary deeply-dug garden soil and a sunny situation are all the plants need. It is quite readily increased by division, and in order to get the best results it is advisable to lift and divide the plants every two or three years. March is a good time to plant. Besides growing the Foam Flower in the rockery it is a good Spring-flowering carpeter for growing among Spring bulbs, or it may be employed as an edging plant to the perennial border.—*Gardeners' Chronicle.*

ONOCLEA SENSIBILIS.—Among the many good, hardy, garden Ferns native of North America, *Onoclea sensibilis*, the Sensitive Fern, must be considered one of the most desirable. This species is quite hardy and will succeed in any cool soil containing humus, in shade or partial sunshine. It is, however, not very particular, and in most gardens will cover a considerable space, sending out underground rhizomes from which ascend the elegant fronds to a height of about one foot. In the Spring these are a most delicate, almost transparent, green, which eventually changes to a pure, soft emerald green which is an uncommon shade among Ferns. Towards Autumn these fronds become a warm, deep brown color.

O. sensibilis belongs to the group known as "Flowering" Ferns, and it makes an admirable companion in the woodland for hardy Cyclamens, Spring bulbs, *Orchis maculata*, *O. foliosa* and other similar subjects. *Gardeners' Chronicle* (British).

A RARE AND BEAUTIFUL SHRUB.—As long ago as 1780 that beautiful shrub, *Fothergilla major*, was introduced into England. It appears to have been entirely lost sight of by the end of the eighteenth century, both here and in the United States, and was not seen again until a few years ago, when it was re-discovered on the Alleghany Mountains of Virginia and brought once more under cultivation. It is a deciduous shrub, ultimately six feet to eight feet high, erect in its branching, but forming a shapely

bush. The leaves are roundish, three inches to four inches long, dark glossy green above and greyish white beneath.

At the time of flowering the twigs are leafless or only just bursting. The flowers are very curious in having no petals, their beauty being due entirely to the densely clustered stamens, which are pinkish white with yellow anthers and three-quarters of an inch long. The quaint brush-like tufts are composed of numerous flowers, but are smaller than may frequently be seen. They are sometimes cylindrical and two inches long.

The shrub is very hardy, a good grower and easily increased by cuttings. It is difficult to account for its disappearance from gardens one hundred years ago, for they were not then so embarrassed with riches in the way of hardy trees and shrubs as we are today.—*The Garden.*

THE HEUCHERAS.—These lovely hardy plants, the name of which, by the way, is correctly pronounced *Hoikera*, have rapidly won their way to the front rank among dwarf border perennials. Not that they are by any means new, for many species are old inhabitants of our gardens; but the hybridist has been very busy among them, and the introduction of these new forms has given the whole genus a great impetus which has brought the older as well as the newer forms into striking prominence. And, indeed, the plant is ideal from every point of view, the tall, elegantly feathered flower-spikes in contrast with the compact tufts of foliage proving especially happy. Great as the plant is when in flower, a high meed of praise must be accorded to the Autumn and Winter effects of the foliage, for many then take on lovely red and reddish brown hues that persist until the new leaves push out in Spring and cover them.

A very important point in the culture of all species and varieties is frequent division. The plants throw out offsets freely, but as they do so the stems are pushing higher and higher out of the ground, leaving a longer and longer length of bare stem so that the only way is to break them up into single crowns and replant to the lowest leaves. If this is done in September or early Spring, the plants very soon push out an abundance of roots and they flower splendidly the first year. In addition to their use in the rock garden and border, they are ideal plants for edging, though where used in this way as well as in the border, great care must be taken that the soil is well drained.

In addition to their light and graceful habit in the garden, they are really beautiful when the cloud-like sprays are cut and used as table or other decorations. This brings to mind that by growing a few plants in pots and bringing into the cool greenhouse early in the year, an early and especially valuable display may be obtained, for not only do these flower profusely for several weeks, but they can be turned into the open air again as soon as flowering is over and forced regularly every year.—*The Garden.*

THE GARLAND FLOWER (DAPHNE CNEORUM).—This is one of the best of the evergreen *Daphnes*, and, unlike the majority, is of prostrate habit, which renders it valuable for the rock garden and the edges of beds of other shrubs. When this edging happens to run alongside a path the effect of a line of this dwarf shrub in bloom is very fine. The abundance of deliciously fragrant flowers produced by healthy plants is such that scarcely any of the leaves are visible.

The flowers are produced in dense terminal clusters about the middle of April, lasting in beauty all through May, and of a rich rose-pink color. It thrives in a good and well-drained loamy soil, which should not, however, be allowed to become dust dry at any time of the year. It is to be feared that many of the failures one hears of in cultivating this plant on rock gardens are often the result of dryness at the root during the Summer. This shrub enjoys all the sunshine we can give it, but this must be accompanied by a cool root run. It flowers freely and its propagation is of the simplest.—*Gardening Illustrated.*

THE SALPIGLOSSIS.—One of the most charming of our hardy annuals—the *Salpiglossis*—appears to be losing favor as it is rarely seen grown to any extent today. In the average garden one seldom meets with it, and in houses where once it was prized as a pot plant it is a stranger. It is curious that a flower so beautiful in its veinings and so lavish in its output should be neglected. As we all know who grow it, it is a lover of the sun and is never seen to greater advantage out of doors than when located in a south aspect. In the way of culture it needs no more than what is usually accorded to *Petunias*, a light sandy loam suiting it to perfection. It is as a plant for greenhouse and conservatory decoration, however, that one is able to appreciate it the most, and for grouping purposes it is worthy of greater attention.—*The Garden.*

ELÆAGNUS ARGENTEA.—This is one of the most striking of the *Oleasters*, with silvery leaves, and the only species native of North America. It grows from six to twelve feet high, and has slender branches, spreading by means of underground suckers, which appear from around its base as in others of this ornamental genus. The narrow, tubular, drooping flowers, silvery outside and yellow within, are deliciously fragrant and pleasing, as they mingle with the silvery-gray leaves in May. At this season a group of

four or five plants is very attractive.—*Gardening illustrated*.

FUNKIAS FOR SHADE.—One of the most cheerful-looking corners of my garden during an unusually dull, cold May was that where Funkias grow. They have been located there many years, and all the trouble they entail is to take them up occasionally for the purpose of division. I do not know of any hardy plant more useful for decorative purposes in a shady position than Funkias. Complaints are sometimes made in gardens where trees overhang that nothing will grow under them, but an exception must be made in respect of these plants, as they love both shade and moisture. Funkias will grow in almost any kind of soil that retains moisture, and are never better served than when planted in the shade. In the open the sun soon mars the color of the yellow and whitish leaves, but given a position under trees or the partial light beneath a pergola their beauty will continue much longer. I regard Funkias as an acquisition in a garden near to town, for they thrive where some plants barely exist, and their hardiness in the most trying winters is well known.—*The Garden*.

SOME DWARF RHODODENDRONS.—For grouping in fairly open woodland, for the margins of shrubberies, the rock garden or mixed border, the Rhododendron family includes a large number of dwarf species and hybrids which are among the most precious shrubs we possess. The majority of them are hardy, and easy to grow to perfection in any lime-free loam in sun or half-shade with some shelter from wind. All that they require, where peat is absent, is a little leaf-mound or really old cow manure at the time of planting and later on as an occasional top-dressing. A cold root-run and one that does not dry out in spring or summer is highly desirable, for the fine, hair-like surface roots are very susceptible to drought. At the same time the drainage must be good, and while the soil is retentive it should be of a loose and friable vegetable nature.

Omitting, owing to the exigencies of space, the mollis, Ghent, rustica and Japanese groups, usually classed as Azaleas, there still remains a wide selection of dwarf species and hybrids of great beauty and interest. Moreover, as such plants as these are almost invariably sent out budded, and as they move better than most things, a display may be confidently expected the first season and this without detriment to the shrub. I need hardly add that many of the Rhododendrons mentioned below are often known as Azaleas.

Usually the earliest to bloom with us, *R. præcox* is also one of the most charming. A hybrid between *RR. ciliatum* and *dauricum* it is a neat-habited evergreen of 3 ft. to 5 ft., with deep green, glossy leaves and terminal trusses of pretty rose-purple flowers. An excellent variety for grouping in woodland or where it can be afforded some shelter from hoar frosts and biting winds, both of which are liable to injure the blossoms.

Another early bloomer is the beautiful Chinese *R. ledifolium*, also an evergreen, with dense, hairy foliage and close, shrubby habit. This fine species, which reminds one of the old *Azalea indica* of greenhouses, and of which it is probably a form, is perfectly hardy here, though a sharp March frost may prove mischievous with the breaking buds. It is, nevertheless, one well worth the risk of occasional disappointments, its milk-white trusses being indescribably lovely. The wise will give *R. ledifolium* a westerly exposure, and, if possible, the protection of some deciduous tree.

Perhaps the most weather-proof of all the smaller Rhododendrons is *R. (Rhodora) canadense*, a deciduous little shrublet and most faithful bloomer. It usually breaks its plum-colored buds in March.—*The Garden*.

Brief Horticultural Jottings

George W. Pittinger, Jr., Asbury Park's Commissioner of Parks, has brought half a dozen redwood seedlings, each a few inches tall, from the Pacific coast and will plant them on the Atlantic coast. The infant trees will be set out in Asbury Park, Red Bank, Freehold and Atlantic Highlands. If the seedlings stand the summer the Commissioner will bring more of them into the State next autumn.

A redwood planted in Burlington county some 25 years ago is still thriving and gives promise of continued healthy growth.

A quarter of a century means little in the life of a redwood. If the tree is alive, say a hundred years from now, there will be ground for confidence that the perils incident to early tree childhood have been averted. Meantime, if this experiment is successful, by 1975 Mr. Pittinger's redwoods ought to be about 25 feet high, for the tree is reported to grow six inches a year. Five hundred years from now they should form a grove of sizable half grown trees. By the year 3000 they will have attained maturity and practically have ceased growing. To reach that stage in redwood development is estimated to require close to eleven centuries which separate 1923 from the year 3000.

Several attempts have been made to cultivate the redwood tree in the Eastern States without establishing conclusively that they can withstand the climate. Sequoias have not been able to stand the winters or the minute fungi, called mildew, which attacked them in Atlantic City regions.—*N. Y. Herald*.

That North Dakota was at one time abundantly covered with a tropical flora is evidenced by the fossils found in rock beds in what is now a treeless plain. That country was once covered with magnificent forests of hardwood timber, with also more or less coniferous growth. Thick beds of lignite (a very soft grade of bituminous coal), indicate that great swamps were once located where now are great plains. Fossils of Fig trees and a Fan Palm with leaves six feet across go to prove that the climate of North Dakota was once as warm as it is now in the south-eastern states along the Atlantic Coast.—*Flower Grower*.

According to reports, the Indian scientist, Sir J. Chandra Bose has demonstrated that plants have, to all intents, hearts which pulsate regularly. By means of a crescograph, which enlarges up to 100 million times, he was able to observe the actual movement of the cells. The problem of how sap rises in plant stems has never before been satisfactorily explained. Capillarity and osmotic pressure is too slow to account for the fact that sap rises in a tree stem more than 100 feet an hour. The Indian wizard has now shown that the cells expand and contract regularly, lifting the water and passing it upward in much the same way as the heart pumps the blood through the arteries of the body. Now is it palpitation that causes some plants to bleed so freely after pruning?—*Exchange*.

The Moss Rose differs from the Cabbage Rose only in the much greater development and branching character of the glands on petals and sepals and the branching of the latter. The Cabbage Rose has been in cultivation for more than 2,000 years, and the earliest record of the Moss Rose is from Carcassonne, in southern France, where it probably originated as a bud-mutation from the Cabbage Rose at least as early as 1696. The mossy character has since arisen independently from two other varieties of the Cabbage Rose.

Thus in 1775 the Unique Rose appeared in a garden in the eastern counties as a tinged-white variety, and in turn gave rise to the "Unique Moss" through a bud-mutation in France about 1843. The Rose de Meaux is a miniature variety of the Cabbage Rose which may date from about 1637. A moss-mutation appeared from this in the west of England in 1801. Both the Moss and Cabbage Rose are sterile, and there is little doubt that all these derivatives arose from the old Cabbage Rose as bud-mutations. The records show that at least seven bud-reversions from the Moss Rose to the Cabbage Rose occurred in the period between 1805 and 1873. In the half-century following 1788 seventeen varieties of the Moss Rose appeared, one of which was single and fertile and extensively used in crossing. Twelve of these bud-mutations are parallel to corresponding earlier variations in the old Cabbage Rose. Bud-mutation is therefore a frequent phenomenon in *Rosa Centifolia* under cultivation, and there is, as the authors suggest, a direct connection between this condition and the sterility. The evidence indicates that the mossy character is in all probability a simple Mendelian dominant. *Journal of the Royal Horticultural Society*.

The United States is one of the very few flower loving nations which does not have a national flower. England has the rose, Scotland the thistle, Holland the tulip, Spain the orange blossoms, Italy the daisy, Greece the olive, Wales the leek, Ireland the shamrock, Australia the wattle-flower, Germany the bachelor's button, India the poppy, Peru the sunflower, and Egypt the lotus. The United States has several candidates for the honor, none of which have at any time been definitely chosen. Japan, another nation of flower lovers, divides the honors between two favorites, the chrysanthemum and the cherry.

Comments from Our Readers

The articles from the foreign magazines which you reprint in the CHRONICLE are interesting to us "old timers" who got our early training abroad and who see English magazines only occasionally. There can be no doubt but these notes are helpful to the gardeners in this country, but just as helpful would be notes from these gardeners, passing their experience along from one to another. Some years ago we had good articles by gardeners which brought up arguments that sometimes became pretty heated. This made them all the more interesting. But the men who wrote these articles belong to the class of the "old timers" and what is the matter with the young gardeners of today? When we old fellows were young, we liked to send along notes, if for no other reason but to see our names in print. Wake up, you young fellows, and show us what you can do.

Massachusetts

A Veteran Gardener

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa., August 14, 15, 16, 17.

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between the professional and the amateur gardener.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goddard, Sewickley, secretary.

CLEVELAND, O.: R. P. Brydon, chairman; Arthur Brown, Cleveland, secretary.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of the Western Pennsylvania Branch of the National Association of Gardeners was held in the public school, Sewickley, Tuesday, June 19. Manus Curran, chairman, presiding. The chairman of the convention committees reported progress. William A. Mace, Mayor of the City of Pittsburgh, advised that he will attend the convention to welcome the delegates. The application of A. G. Nash for membership in the national association was endorsed by this branch.

Another meeting of this branch was held at Gen. Forbes Hotel, Pittsburgh, Tuesday, July 3. The chairman of the various convention committees reported in detail, and arrangements are well under way to make the convention a most successful one.

Next meeting will be held at Carnegie Library, Tuesday, July 17.

PRELIMINARY PROGRAM OF THE CONVENTION

Place—Fort Pitt Hotel, Pittsburgh.

Date—August 14, 15, 16, 17.

TUESDAY, AUGUST 14.

- 9:00 A. M. Meeting of the Board of Trustees and Directors.
2:30 P. M. Opening of the convention. Manus Curran, temporary chairman. Address of Welcome by William A. Mace, Mayor of Pittsburgh. Response by Robert Weeks of Ohio. President Barnett's Address. Address by a prominent State Official. Response by Thomas W. Head of New Jersey. Greetings by a Member of the Garden Club of America. Response by William N. Craig. Address by E. J. McCallum, representing Pittsburgh Chamber of Commerce.
8:00 P. M. Illustrated Lecture in the English Room of the Fort Pitt Hotel on "Hunting Big Game in the Rockies," by A. J. Cogshall, to which the public is invited.

WEDNESDAY, AUGUST 15

- 9:00 A. M. General Business Session, presided over by President Barnett.
Noon. Recess.
2:00 P. M. Afternoon Business Session.
7:00 P. M. Annual Banquet, Fort Pitt Hotel.

THURSDAY, AUGUST 16.

- 9:40 A. M. Automobiles leave the Fort Pitt Hotel for tour of East End and Pittsburgh parks, and thence on to Sewickley.
8:30 P. M. Social evening at the Fort Pitt Hotel tendered by the Pittsburgh Florists' and Gardeners' Club.

FRIDAY, AUGUST 17

- 9:30 A. M. Leave Fort Pitt Hotel for tour of the city and visit to the J. I. Heinz Company, the home of "57 varieties," where a special luncheon will be served.
1:00 P. M. Visit to Westinghouse Electric Company's plant.

(Detailed program will be issued in advance of the convention.)

ACCOMMODATIONS

Single room without bath, \$2.50 and \$3; with bath, \$3.50 and \$4.
Double room with or bath, \$4 and \$5; with bath, \$5 and \$6.

Members attending convention should write in advance direct to the Fort Pitt Hotel to reserve accommodations.

CLEVELAND BRANCH

Meeting of the Cleveland Branch of the National Association was held at Alhambra Restaurant, June 18, Mr. Brydon presiding. All members were urged to explain to their employers the aims of the National Association and that it would be to the employers' interests to become sustaining members.

After general discussion of various subjects, including the coming Pittsburgh convention, the meeting was declared very satisfactory. Next meeting at the Alhambra Restaurant, Euclid Ave. and 105th St. on Monday, August 6, dinner at 7 P. M.

A. Brown, Secy.

NORTH SHORE, ILL. BRANCH

At a meeting held at Lake Forest, Ill., on July 6, the following members organized a local branch: James A. Wilson, William Gruth, Frank Kuehne, Robert Kuehne, Marc Twinney, Walter Sims, William Stewart, Thomas Blair, William Michie, John R. Clarke. Mr. Wilson was elected chairman and John R. Clarke, secretary. The secretary was instructed to communicate with the national secretary to secure information which will give the branch a good start. The prospects are bright for an active branch as there are many gardeners in the neighborhood who will be likely to join.

JOHN R. CLARKE, Secy.

NEW MEMBERS

Admitted to the National Association: N. Y.: Richard Powers, New York, N. Y.; Joseph Bradley, Deal, N. J.; William MacKenzie, Elberon, N. J.; Jane Clark, Newton, Mass.; F. Lloyd, Locust Valley, L. I.; Robert Hughes, Glen Cove, L. I.; Frank E. Sladen, Cohasset, Mass.; A. G. Nash, Dawson, Pa.; John Rutherford, Greenwich, Conn.; John McCallie, Cleveland, Ohio; Charles Wilkinson, Elberon, N. J.; Frank G. Black, Phoebus, Va.; Duncan Munro, Brooklyn, N. Y.; Robert Gardner, Gibsonia, Pa.; Fred Boepple, Deal, N. J. Associate: Thomas Knight, Rutherford, N. J.

AMONG THE GARDENERS

James Warr, for a number of years gardener on the C. S. Eaton estate at Marblehead, Mass., and more recently gardener to Mrs. Ben Ali Haggin, Tannersville, N. Y., has accepted the position of gardener to T. A. Tedcastle, "Hillcrest," Milton, Mass.

Alec Arthur secured the position of gardener to Fletcher Brown, Wilmington, Delaware.

Donald Crighton, for the past three years gardener under Robert Cameron, superintendent of Castle Hill Farm, Ipswich, Mass., has accepted the position of gardener on the estate of Mrs. Paul Moore, Convent, N. J.

John R. Ness, formerly with Paul D. Cravath, has been appointed superintendent of the Garden City at Shawsheen, near Lawrence, Mass., belonging to the American Woolen Co. He commenced his duties there last month.

LOCAL SOCIETIES

NASSAU CO. HORT. SOCIETY

This society held its monthly meeting in Pembroke Hall on Wednesday, June 13. President James Gladstone occupied the chair. Mr. Thomas Leeming was elected to honorary membership and one petition for active membership was received. Mrs. Harold I. Pratt attended this meeting and gave a very interesting talk on how to improve our exhibitions and increase our membership. John F. Johnstone, James Kelly and Arthur Cook were appointed to work with the North Shore Garden Club. Exhibits for July meeting will be 12 mixed Gladioli, 3 heads of Cabbage and 25 String Beans.

ARTHUR COOK, Cor. Secy.

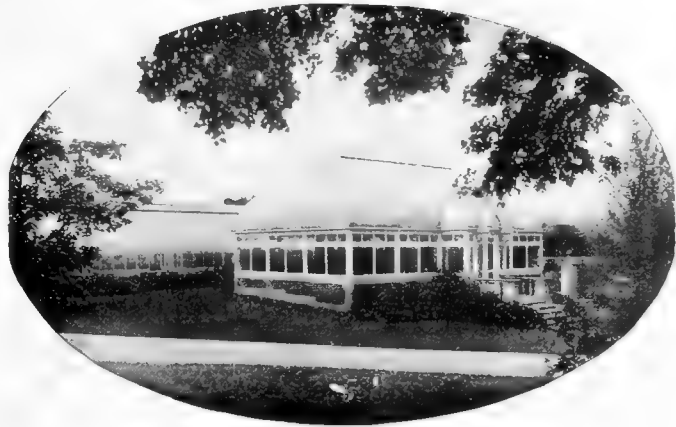
WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting was held in Greenwich, Conn., June 12. The meeting was well attended. Members from the Tarrytown and the Stamford societies were guests of the evening.

The following were chosen a committee for the September flower show: Edwin Beckett, W. P. Robertson, W. J. Sealey, William Smith, James Stuart, James Tough, and John Wilson. After considerable discussion it was decided to hold a basket outing this year instead of the usual shore dinner. A committee was chosen to meet the Stamford and Tarrytown outing committees and decide upon a place to hold a joint outing.

A schedule of classes, other than the usual A. N. Pierson and J. H. Troy competition was held at this meeting. The classes and winners were as follows:

- Class 1—No entries.
- Class 2—Roses, Hybrid teas, 6 varieties, 3 of each. First, Edwin Beckett; 2nd, George Hewitt.
- Class 3—Vase of Iris, 3 varieties, 6 of each. First, T. J. Bulpitt; 2nd, Nick Vasiloff.
- Class 4—Peonies. First, W. D. Robertson; 2nd, T. J. Bulpitt.
- Class 5—Sweet Peas, 25 Sprays. First, John Andrews.
- Class 6—Herbaceous perennials, 6 vases, 6 species. First, James Tough; 2nd, James Linane.
- Class 7—Vase of outdoor flowers, arranged for effect. First, Andrew Kneuker; 2nd, Peter McCabe.
- Class 8—Six varieties of vegetables. First, James Tough; 2nd, James Linane.
- Class 9—Lettuce, 3 heads. First, James Linane; 2nd, James Tough.
- Class 10—Cauliflower, 3 heads with foliage. First, H. F. Bulpitt; 2nd, James Tough.
- Class 11—Strawberries, 2 quarts. First, James Tough; 2nd, John Wilson.



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Col. J. M. Schoonmaker, Sewickley, Pa., John Carmen, Gardener.
Mr. B. F. Jones, Jr., Sewickley, Pa., H. Baumgartel, Gardener.
Mr. W. S. Mitchell, Pittsburgh, Pa., Robert Ladner, Gardener.
Mr. Emil Winter, Pittsburgh, Pa., Otto Rost, Gardener.
Mr. E. M. Herr, Pittsburgh, Pa., Charles Gittings, Gardener.
Mr. Geo. Mesta, Pittsburgh, Pa., Augustus Weber, Gardener.

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In the monthly competition James Wilson 1st for a vase of Gladiolus, Alice Tiplady; Edwin Beckett, 2nd for vase of Lillium Speciosum; W. D. Robertson, 3rd for a Cattleya Gaskelliana. Other exhibits included six pots of Gloxinias, W. J. Sealey; Iris, H. F. Bulpitt; Roses, Chas. Adcock; Trachelium, Alex Smith. In vegetables, H. F. Bulpitt received 1st and James Linane, 2nd.

A. KNEUKER, Cor. Secy.

DELPHINIUMS

Gardening is an art which has been the study and recreation of men for all ages. Its literature is exceedingly voluminous. But although we have this great body of literature and historical records of the art there must forever be beginners. We would

suggest that the beginner in gardening start with well known favorites and when these have become well established, finer subjects, or perhaps those which require more care may be added. We are indebted to many amateurs for valuable plant introductions from other lands and indeed much of the best work in gardening and the development of plants has been done by the man or the woman whose business has lain in an entirely different direction than that of horticulture. Most flowers, it will be found, deserve especial care and treatment. There are many genera or families that offer opportunity for study when taken up in detail. There are several popular plants such as Dahlias, Peonies, Chrysanthemums, Roses, etc., but one that deserves mention is the Delphinium.

The Delphinium is coming into popularity. There are in cultivation many species, both annual and perennial, but the most important are the tall hybrid perennials. They are valuable for their wonderful range of color and great variety in height. Colors range from almost scarlet to pure white, from the palest lavender up through every shade of blue to deep indigo. And for the variety and size of their individual blooms, some of which are single, some semi-double, and some perfectly double, set on spikes from one to six feet in height. There are about a dozen species in cultivation. The combinations in which they can be placed are numerous. They may be used in the mixed border, in masses or groups, in one or several colors, or associated with flowering plants or shrubs. Planted against a mass of Evergreens they form a beautiful picture. Delphiniums can be made to bloom for several months by continually cutting off the spikes after they have done flowering. If the centre spike is removed the side shoots will flower, and by thus cutting off the old flowers before they can form the base they keep up a succession of bloom. Another plan is to let the shoots remain intact until all have done flowering, and then to cut the entire plant to the ground, when in about three weeks there will be fresh bloom. In this case to keep the plants from becoming exhausted they must have a heavy dressing of manure. A good way to Winter large clumps of Delphiniums is to put some coal ashes over the crown of the plants after cold weather has set in. This plan will eliminate the decay so often found in the Spring.—*William Graham.*

PLATYCODON OR CHINESE BELL-FLOWER

This is one of my best perennial flowers, as it blooms constantly from end of June to late in September. This is also known as Balloon flower, as the flower before completely opening up resembles a balloon. The blue or white star, bell-shaped flowers appear in numerous loose racemes. One or two-year roots will bloom the first season set out, and after that appear annually. In Fall when the stalks become dry they should be cut off four or six inches above the ground. Do not pull the stalks, as the buds for next year's blooms are at the bottom of the stalks near the root. Will make a dense branching bush about two feet high the second year, which should be tied to a stake. — *Wisconsin Horticulture.*

COMBATING FRUIT TREE BORERS

The best and surest remedy for borers after they have gotten into the trees is the old and much-used way of digging or cutting them out. An experienced fruit man can readily locate borers by the oozing of sap or the small amounts of sawdust coming from tiny holes in the bark leading from their burrows. With the aid of a sharp knife or chisel these pests can be reached and dug out, or a wire may be pushed into the burrow and the grub impaled. Great care must be used with this method, or the trees will be injured more than the borer. Trees should be thoroughly examined in the Spring, not later than May, for this pest. At this time they are easily located by the sawdust-like castings. Others which are just transforming into beetles may be also destroyed. Continue the use of the knife during the Summer whenever a borer can be located and go over the trees thoroughly in Autumn also. You can get the younger borers which are working beneath the bark at this time.

USE SUNOCO SPRAYING OIL FOR Box Bush Leaf Miner

Box bushes, to prevent damage from this pest, should be treated in early May, as the adult flies begin to emerge from the foliage. Circulars on this pest and method of treatment mailed free upon application. Ninety per cent control possible.

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One of the best preventive measures is clean culture. Rank growths of weeds, water sprouts and other vegetation harbor and encourage borers and such vegetation should not be allowed to accumulate at the base of fruit trees.—*Fruit, Garden & Home.*

PROPAGATING RAMBLER ROSES

It is very easy to propagate Rambler Roses by cuttings of ripe wood in July. We usually take the tip of a branch which has flowered, as that ripens earlier, cutting it about eight or ten inches long, the lower end being just below a bud. Trim off some of the foliage if there is much of it, and set in mellow ground to a depth which leaves about two buds above the ground, then invert a fruit jar or other wide-mouthed bottle over the cutting, after watering it. It is preferable to place the cutting in a rather sheltered locality, and our own practice is to put them, as a rule, under or around the parent bush. Very often we do not even cover with a jar, but it is more certain to do this, especially if the season turns very dry after the cutting is set. Leave the cuttings untouched until the next Spring, when a high percentage of them will be rooted, and may be set like nursery plants. If you have a favorable locality in a Rose bed where you can water the cuttings and give them clean cultivation, you would probably root them very well without covering with a glass jar, but it is an added protection.

These Roses are also very easily propagated by layers, bending down a matured shoot in Spring, with a slight cutting or heel in the bark on the under side, then putting earth over the place where they are fastened in the ground. In many cases such layers will have a great bunch of roots the following season, and may then be cut from the main plant and set wherever desired.—(*Rural New Yorker.*)

Daily you plant seeds. What kind are you planting, careful or careless seeds? Seeds of cheer, hope, joy, tolerance, humility, or seeds of selfishness, anxiety, self-pity, scorn, envy, bitterness, and the like? Do you spread cheer, or are you a long-faced pessimist? Are you hopeful, or do you express anxiety, fear, and doubt? Have you tolerance for the views of others, or are you impatient and scornful? Does a brother's deserved success cause you envy, or do you rejoice with him? Do you magnify the so-called faults of your neighbors or minimize their weaknesses? Are you pleasant and agreeable in company, but heavy, dull, or serious at home? These are a few of the seedlings you are planting every day. Cultivate the soil vigorously; uproot the unruly, unlovely weeds which hinder your progress. Think about your mental garden. It is your richest possession, your dearest treasure, that which reflects you as you really are. The way you tend it, feed it, nourish it, clothe it, proves what you think of it and desire it to be. Make a fresh start this day to mirror to the world the cultivation you give your garden. The happiness, peace of mind, growth, and success which are your divine inheritance cannot then escape you.—*Daily Times, Visalia, Calif.*

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ROSE WORLD AGOG WITH ANTICIPATION

THE rose-world is just now agog with anticipations of new red roses, and there is a rose of recent introduction which may be expected to impart its marvelous coloring to hybrids that shall satisfy our tastes for something other than we've got: It is *R. Moyesii*, a single of the climbing habit, introduced from China in 1904, but said to be of such a curiously intense coloration that hybridists are probably even now seeking to prepare us new wonders from it. If the solidity of coloring which distinguishes *R. Moyesii* can be imparted to the hybrid tea type we shall be blessed with something wonderful in red roses, for *Moyesii* is described as perfectly wonderful enough in itself.

It is an extraordinary fact that notwithstanding the eminence of British rose-growers there is, as yet (though the subject is now under discussion between the authoritative bodies there, no definite rose garden which establishes the hall mark of rose-growing for this great cult. America does this better, for Cornell and Yale universities have established rose-gardens with more than the garden as their viewpoint. France has paid her tribute to the rose by the great rosery at Bagatelle. But it has remained for that great rosarian of France, M. Jules Gravereaux, to design a scientific memorial to the rose: in his tremendous collection of some eight thousand varieties he has set out a vista of Rose History. In this retrospective collection there is traced the history, distribution, and development of the rose in a manner which we believe is without equal elsewhere in the world. This is his modest description of it, but consider what a labor and achievement it represents:

"Here is exhibited a series of characteristic types showing the different aspects of the Rose throughout the ages. On one hand are the wild Roses, classified according to a new standpoint, the probable order of their dispersal over

the earth and according to their general physiognomy.

"Firstly, the most imperfect Roses, which must have been the earliest comers. *Rosa berberifolia* with simple leaves, *R. maracandica*, *R. minutifolia*, *R. microphylla*, etc.; then the Roses with prickles, the epidermis covered with hairs and fine acicules, whose habitats are the high altitudes, *R. Webbiana*, *R. sericea*, *R. acicularis*, etc.; then the Roses without prickles of the lower mountains, *R. alpina*, *R. ferruginea*, *R. cinnamomea*, etc.; the Roses of the forests, needle-prickled, *R. canina*, *R. rubiginosa*, *R. oxyodon*, etc.; then the Roses of the warm climates with shiny foliage, as *R. bracteata*, *R. lævigata*, etc.; and lastly, the roses with perfect organs, probably the most recent, *R. indica*, *R. moschata*, *R. multiflora*, etc.

"Facing these wild roses are the cultivated ones which we can, starting from the Greek civilization, know with some certainty. Beginning with the Roses of Theophrastus, the centifolia and the Rose of Mount Pangæus and concluding with the most recent races, *Wichuraiana* and *Pernetiana*, about fifty types show the successive stages of our garden Roses.

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In this grand rose-growing country we ought to attempt a similar enterprise—not in plagiarism, but to submit to a scientific basis our tribute to the rose, *Queen among Flowers*, whom we, by merely "growing" have relegated to the position of handmaid.—*South African Gardening and Country Life*.



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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

AUGUST, 1923

No. 8

Things and Thoughts of the Garden

WILLIAM N. CRAIG

NOT many appreciate the potential dangers to gardens from the European corn borer. Not only does it attack and almost entirely ruin corn, especially sweet corn, and numerous other vegetables, but a great many flowers are badly attacked; the varieties which are banned from shipment from the infected areas unless inspected include zinnias, asters, chrysanthemums, cosmos, dahlias, gladioli and hollyhocks which by no means complete the list of plants attacked. There are many other annuals and perennials, and most serious of all, roses. It was felt for some time that roses from their woody nature might prove immune, but such is not the case, as they are being badly attacked both outdoors and under glass. One commercial grower told me a few days ago that his loss under glass this season was at least \$1,500. The moths fly into the houses, deposit their eggs on the young shoots and the little borers when hatched start to tunnel down the shoots completely destroying them. It seems not improbable that if this serious pest continues to spread, growers of both roses and chrysanthemums in the infected areas, which are being constantly extended, will be obliged to protect all ventilators and doorways to prevent the moths from entering. The bulk of readers of the GARDENERS' CHRONICLE of America will fortunately know nothing of the deadly damage now being done over a wide area in Massachusetts, and a number of other states, and it is sincerely to be hoped that parasites may be propagated in sufficient numbers very soon to control the pest. To any who may find any of these destructive pests I would counsel the cutting off and burning of all attacked shoots and in Fall the gathering together and burning of all dry weeds and other forms of debris. Many weeds as well as cultivated plants are attacked and cleanliness added to watchfulness are the best methods of prevention and protection.

* * *

I wonder if any readers of the CHRONICLE have succeeded in flowering the stately and beautiful *Lilium giganteum*? This is the most noble of all hardy lilies and is not to be confounded with the "giganteum" of florists which is merely a form of the well-known Easter lily *L. longiflorum*. A few weeks ago I had the pleasure of seeing a very nice spike ten feet in height within five miles of the Boston State House. This was in an ideal location in a well secluded piece of woodland, protected from cold winds. The spike carried ten flowers, which are white in color, tinged a little with green outside and with purple inside. *L. giganteum* is a native of the Himalayas and is usually classed as somewhat delicate, but stands rigorous Winters if well mulched. It succeeds well in the south

of England, but I have seen splendid spikes in the English lake district and on the island of Arran on the west coast of Scotland. Sir Herbert Maxwell of Monrieth in Wigtownshire grows large colonies of this noble lily and flowers it finely. It takes five or six years to grow a bulb to flowering size from seed. After blooming the bulb is of no further value, but it leaves a number of offsets which can be transplanted and grown along. The foliage is larger and more handsome than that of any other lily.

* * *

Speaking of *Liliums*, I wonder if it is generally known that *L. longiflorum* *Formosum* makes an excellent garden lily? About the middle of July I saw some excellent spikes three feet or more in height in a garden on the South Shore of Massachusetts. The head gardener informed me that plants which had been flowered under glass were cut back and planted outdoors, that they had withstood two Winters without protection and had flowered splendidly. I have planted out the *giganteum* form of *longiflorum* in late Fall and these have wintered and flowered well for one season, sparsely a second season and then disappeared. This is the way *L. auratum* acts with most of growers, but in a rhododendron bed with a generous mulch of leaves which are never removed and where the plants do not overshadow it too much, this latter variety and our handsome native variety *L. superbum* have seemed very much at home.

* * *

The bulbs of that immaculate garden lily *L. candidum*, known as the St. Joseph's, Madonna, Annunciation and Ascension lily, are the earliest to arrive in this country, and the sooner they are planted the better, for they start to root and make a rosette of leaves in August and September. This is much the oldest of all lilies in cultivation, being introduced to England from southern Europe as long ago as 1596. Many amateurs fail to grow it successfully. It will often be seen in old gardens growing and flowering with a reckless abandon, while in many pretentious ones it seems very unhappy and is badly diseased. Like all lilies it dislikes fresh manure, but a mulch of old manure proves very beneficial in the growing season. While it will grow and flower very well in full sunshine, I have had better success with it in partial shade, especially where broken somewhat from the morning sun. Wherever planted it should not be too close to other plants, and it is especially necessary now to give the plants full light when the new leaves are pushing up. While the bulk of lilies need deep planting, *L. candidum* should only be covered four inches. Rolling the bulbs in sulphur before

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planting has helped to keep plants clear of disease, also tipping them a little sideways.

* * *

The common "Tiger lily," *L. tigrinum*, while a native of China, has been in cultivation for one hundred and twenty years and is seen quite often growing along roadsides. In New England I have seen abandoned farms where lilacs and this lily bore mute testimony that at one time flower lovers dwelt there, but had given up the struggle when the great western wheatlands poured in food far cheaper than they could raise it, when their children lured by the cities' call left, and when the old folks discouraged gave up the struggle and left their homesteads for Nature to reassert itself on them. The showy tiger lily, while too gaudy for admission to the average garden where colors are carefully culled, and where pink, white and blue are about the only ones tolerated, have their place in the perennial border, and wild garden. No other lily will so soon naturalize itself; it propagates readily from seeds and from the bulbils so abundantly produced in the axils of the leaves.

* * *

A very fine garden lily which flowered early in July is *Hansonii*, commonly known as the "Golden Turks'-Cap Lily." This is one of the most dependable lilies in cultivation and succeeds specially well in full sunshine and with *tigrinum* thrives extremely well in a heavy soil. Some of the best I have seen were growing in a stiff, retentive clayey loam. For cutting this is one of our very best lilies for the garden, and if given a place where it will not be overshadowed by other plants will grow, flower, and increase most satisfactorily. The flowers are produced loosely on the stalks, are slightly fragrant and spotted with purplish brown, the anthers are of an orange-red color.

* * *

Very vigorous and thoroughly dependable as a garden lily is *L. Henryi*, sometimes called the "yellow speciosum." It is, however, a far more persistent variety than *speciosum*, and not infrequently attains a height of seven to eight feet. It is furthermore of an entirely distinct habit of growth from *speciosum*, and retains its foliage far better. It is no uncommon thing to see spikes carrying twenty-five to fifty flowers and as many as one hundred and twenty have been produced on a specially robust stalk. Disease which attacks so many lilies appears to but rarely touch *L. Henryi*. Planted a foot deep it grows best, and it is well to lift and replant clumps once in three or four years. There are many forms of *L. speciosum*, and this is a deservedly popular lily in the garden; as well as for culture in pots. Its colors fit into garden schemes where special color effects are desired, better than *Henryi*, but the latter is much more disease proof and persistent. Perhaps when we are driven by the Federal Horticultural Board to raise our own lilies we may from home seedlings get rid of much of the disease which seems peculiar to imported lilies.

* * *

Some twenty years ago Farquhars' of Boston introduced *L. Philippinense*. I well remember the award of a gold medal to them for it by the Massachusetts Horticultural Society. I grew this in pans for two or three years, several bulb flowering well in six or seven-inch receptacles. The plants did not exceed eighteen inches in height at the maximum, and usually only one of the large, trumpet shaped and fragrant flowers was produced. This appears to be a very capricious and uncertain lily and I have not seen it for years. It appears in one or two English catalogs, and is occasionally exhibited over there, but it is strange that it should so completely disappear in America. It would be interesting to know if anyone on this side still has this lily. It is, of course, only adapted

for pot culture in our cold states, but there should be considerable areas in the warmer sections of the country well suited to its culture. Its waxy, white flowers are delightfully fragrant, and the flower stalks are slender and graceful. I have not seen more than two flowers on a stem.

* * *

There are more forms of *L. elegans* than of almost all other hardy lilies combined, and the beginner in lily culture will not go far astray in trying one or more of them. They come in quite a wide range of colors and the various forms all appear to have a greater freedom from disease than the bulk of the species. In one list I have before me twenty-seven distinct forms of *L. elegans* are cataloged and there are many others. We do not see much of that exquisite variety *L. testaceum*, which is sometimes listed as *Isabellianum* and *Excelsum*. This is not found anywhere in a wild state and is believed to be a garden hybrid between *candidum* and *Chalcedonicum*, the scarlet "Turks' Cap lily." The bulbs are similar in appearance to those of *candidum*. It derives the name "Nankeen Lily" from its nankeen yellow colored flowers. Vigorous spikes of this lily will attain a height of six feet and carry a dozen each of the deliciously fragrant flowers. Still another lily we do not see much of is *L. Browni* which flowers here early in August usually carrying but one of its large trumpet shaped flowers to a stem, although I have had four and five on vigorous stalks. The flowers are as much as eight inches in length. Within they are creamy white in color, suffused with yellow; without they are heavily tinged with purple. This fine lily needs supporting when in flower as the large and fragrant flowers are very heavy. While coming from Western China and considered a very hardy species, it is a fact that, unless on very well drained lands, the bulbs are liable to decay in Winter.

* * *

Of all the many garden lilies, I doubt if any is so altogether dependable and satisfactory as the Regal Lily, *L. regale*. I have never yet seen disease on this variety. I have seen as many as twenty-six flowers on a stem in an open field in the near vicinity of Boston, and noted several this season carrying twenty each. It is remarkable that the stalks in spite of their apparent slenderness will hold the flowers up well. I have seen a block of three acres growing in New England on an exposed hillside, which needed no Winter protection, and which was a glorious sight when in flower. No supports whatever were needed to hold the flower stalks erect. They have forsooth a grace lacking in many lilies.

* * *

A very pretty hardy annual, carrying pale blue flowers and not exceeding a foot in height, is *Asperula azurea setosa*. This annual will flower in June from an early sowing and successive sowings may be made as in the case of sweet alyssum. This *Asperula* is effective as a bordering plant and is also good for massing; the color could hardly be displeasing to anyone. Too few amateurs grow the *Browallias*, and while this is really a perennial plant, it is generally treated as an annual. *B. speciosa major* is the best variety and the large bright blue flowers, with a white throat, are very abundantly produced for months. *B. elata* has much smaller flowers than *B. speciosa major*, but is an excellent bedding plant; both deep blue and pure white varieties are readily raised from seeds. *B. speciosa major* makes a very fine pot plant and it is also splendid in baskets.

* * *

Speaking of basket plants, it is surprising that more are not grown. *Browallias* are but one of many varieties available for growing in this way. Fuchsias, like Trailing Queen and others, make grand basket subjects, and if grown in partial shade will flower from June until Octo-

(Continued on page 204)

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

THIS portion of the year, late August and early September, was the last month of the year with the ancients. They gave it the name *Elool*, a word which comes from a root in the Hebrew language meaning "to lament or mourn." This being the driest month of the year in Judea, vegetation became all dried, and burned up, causing a scarcity of food for cattle and much distress. A feeling of sadness sometimes comes over us as we go into September with occasionally an early frost, cutting short the Fall flowering season in the garden.

Everything in the garden is reaching a climax. Many fruits and flowers have gone by, and others are fast approaching the ripening period. The last of the season's flowers will be in their full glory. The beautiful *Anemone japonica* is at its best generally when an early frost comes and destroys it. The late flowering *Aconitums* we also have at this season, very welcome indeed when yellow colors seem to predominate. *Helianthus* in variety stand out boldly in the borders, *Boltonias*, late flowering *Phlox*, *Lilium speciosum rubrum*, *Henryii*, and some of the earlier *chrysanthemums* keep them company. A touch of pink would be very helpful in the borders at this season. We have tried pink *Dahlias* but the least bit of early frost generally blackens them if they are at all exposed to the morning sun. Late flowering *Cosmos* are very often cut down with frost before they flower and we have to resort to pot growing to get any flowers from them.

Perennial seeds may be sown for next year's garden. The borders will require constant attention to make them look well. Staking, hoeing and watering must be attended to and all dead flowers removed.

Lilies for next year's garden may be planted as soon as received. Plant at least ten inches deep. It is a pity that growers of lilies for commercial purposes do not grow their bulbs entirely from seed. If they did so, I believe we should be very little bothered with diseased bulbs as small lots that we have grown seem to be entirely free from disease.

The *Dahlias* will now be flowering and if large flowers are desired, disbudding will have to be resorted to; they should also be given plenty of water at this stage, and strict attention paid to staking. A little stimulation with plant food will help their flowering.

Gladioli should have been planted deep enough to do without staking, though it is safest to examine them to see if they need any support before the weight of the spike tips them over.

Give the rose beds plenty of food and water; remove all faded flowers.

This is a good time to look over the peonies to see if the clumps are growing too large or if any variety should be discarded to give place to something better. We examined quite a few seedlings while judging at the Massachusetts Horticultural Society this Summer, and truly they are getting like several other things; the variations from known varieties are very few. Indeed, it would take a connoisseur to detect the difference of many of them.

Seeds of pansies, English daisies, forget-me-nots, blue Butterfly *Delphiniums* should be sown about the first of August. *Delphinium Blue Butterfly* is classed as an annual in some catalogs, but it is a perennial. We have had a plantation in the same place for three years and this year it has been a mass of flowers. It is one of the finest plants for cut-flowers we have had, and keeps flowering over quite a long period.

Any planting or changing of evergreens may be done in early September. A deep well-pulverized soil is what they delight to grow in, but great care should be taken that they do not suffer for lack of water. But on the other hand, do not over-water. The new positions should be all in readiness before the plants are dug so that the roots will not be long exposed to the air. Plant them firmly and give a clean cut to any of the strong roots that have been broken in the operation. Conifers as a rule seem to make new roots in September as soon as the ground becomes moist after the dry weather in Summer.

The celery will now be growing fast and every encouragement should be given to it by hoeing often, to keep it free from weeds and to keep the surface of the ground open and loose. An occasional application of fertilizer before watering will encourage growth. Before earthing up any, a slight dusting of powdered lime around the plants is beneficial. Spray often to prevent rust. Dusting is probably better than spraying for this fungus. Thin out the lettuce. In September a sowing of lettuce may be made in cold frames for later use and if one has plenty of frame space a sowing of beans, beets and carrots can also be made. Sowings of cabbage and cauliflower may be made during the same month to have an early batch in the Spring. Be careful not to allow sowings of beets or anything else to become over-crowded. They will grow much more rapidly at this season if given plenty of room.

Late corn will also need every encouragement to mature. Remove all growths at the base of the plants, and give them plenty of room.

Tie up endive at intervals of about ten days, just enough to keep up a succession, as it may go bad by decaying if too much is tied up at any one time.

Parsley should be transplanted into a cold frame right away, so that protection may be given it when cold nights arrive. Seeds may be sown for early Spring use, as parsley roots that have been grown all Summer will run to seed very early in the Spring. Sow also plenty of Prickly Spinach in vacant places where other crops have been removed.

As soon as the onion crops die down lift them and spread them out in the sun to get thoroughly dry before storing them for the Winter. Use the larger onions first as the small ones keep much better.

Be sure and sow cover crops on any vacant piece of land that is not required for late crops. When manure is scarce these crops, when plowed under, are a good substitute for barnyard manure, adding humus to the soil. A mixture of Rye and Hairy Vetch may be sown quite late in the season. We shall probably, in the future, have to resort more to this method of supplying the soil with organic matter than in past years. Already truck gardeners are finding great difficulty in getting enough manure for their needs, the motor vehicles doing away with so many horses.

Renovating of lawns, if such work is in mind, should be attended to early. Plough as deeply as possible; add plenty of manure and bone meal, cultivating thoroughly for some time before re-seeding. This will give the seeds of weeds a chance to germinate and be killed before the lawn is leveled and laid down.

In the fruit garden it is better to harvest the fruit before it gets dead ripe. Peaches, plums, etc., that have to be shipped some distance will arrive in very poor condition if shipped when fully ripe. Apples are also better if gathered before they begin to drop too freely. If a high wind rises as they approach the ripening stage, a heavy loss of fruit

will be the result, so it is better to pick them rather on the green side. A good, cool airy fruit room is necessary to keep fruit well, or for any length of time, and, of course, such fruit must be picked by hand. Careless picking means poor keeping quality. Peach trees that are affected with red spider should receive repeated syringings with the hose after the fruit is picked.

Keep cultivating around the raspberry canes and remove all unnecessary growth that may push up. Blackberries may also be looked after in the same manner. Get all young strawberry plants in their fruiting place before the end of August, if possible.

IN THE GREENHOUSE

In the greenhouse we have now arrived at a period when quite often, unless we are watchful, foundation can be easily laid for an attack of fungus diseases. The days are generally hot and quite often the nights are cool. A little fire heat is the best safeguard with plenty top air so that the air is continuously circulating inside the greenhouse. Have all syringing done early in the forenoon which gives a chance to the foliage to be dry before night.

It is now time to get the cutting bench ready for bedding plants for another year. Get a supply of good clean, sharp sand. If it is in any way dirty, it may be washed clean in a tub working a hose through it and allowing the dirt to wash over the side of the tub. If this is kept up for a few minutes the sand will wash fairly clean. Have the sand just deep enough on the bench to keep the cuttings steady. Geraniums and coleus do not like to be kept too damp while they are rooting. Water them well when they are placed in the sand and give them no more until they become quite dry. There are more geranium cuttings lost by watering the bench too often than from any other cause. They also are better kept quite airy.

Carnations that were benched early will, when the cool nights come, begin to make top vigorously. Do not remove any buds after the end of August—the 20th is about right to have flowers when they begin to get scarce outdoors. Keep the soil on the top of the bench stirred lightly and after watering and syringing, dust the bench lightly with air-slaked lime. Watering and syringing should be done at the same time and then the bench should be allowed to get dry. It is advisable to add another wire as the stems lengthen.

By the end of the month buds may be taken on the Chrysanthemums. They must be fumigated quite often to keep them perfectly free from green or black fly, which generally lay their eggs in the leaves that are undeveloped on the point of the shoot. Until the bud sets, they have to be gotten rid of as the leaves unfold. Feed them liberally but do not overdo it. A leaf will break with a snap when they are getting enough. When syringing is done, do it as early in the day as possible. Soft coal soot water is good for the foliage and, then, insects do not relish it.

Buddleia Asiatica may now have their final potting. If one has a very cool house, with just enough heat to keep it from freezing, this plant can be carried over until very late in the Spring. It is excellent for cut flowers, taking the place of Stevia; therefore have a good batch.

When September arrives, herbaceous Calceolarias will begin to grow freely; give them every advantage, keeping them close up to the glass and only give a slight shade if the sun is hot. The shrubby type of Calceolaria will not have done much during the hot weather but if now given attention will begin to grow freely. When an inch or two of soft growth is made, they will propagate quite easily. Large specimens may be grown from the kept-over plants if pinched into shape during the Winter. Pot calceolarias in a good fibery loam, adding equal parts of flaky leaves, well decayed horse manure and sand. Do not pot them too early.

Never allow the Cinerarias to become pot bound until they are in their flowering pots. When potting add bone meal to the compost. We grew plants last year in a small cool pit without a bit of heat, and they flowered as late as May. In fact, we put the last one on a piazza the first week of June.

It is now time to overhaul Pelargoniums; cut them well back and reduce the ball and repot in smaller pots. They delight in a fairly heavy soil. Grow them very cool and close to the glass.

Start the Calla lily bulbs any time now, they enjoy a rich soil. If grown in pots, about four bulbs to a nine-inch pot, is about right. They do better planted out on a bench, if space is available.

If the Bouvardias have been planted outdoors all Summer, it is now time to lift and pot them. Place them in the shade when potted, and spray them lightly until they grip the soil in the pot. They should be housed in the greenhouse by the middle of September. A rather rich compost with plenty of leaves mixed through it is best for them.

I saw a nice bench of Streptocarpus last Spring. This is a good time to sow these beautiful hybrids on finely sifted sphagnum moss, in heat, and grow in a temperature close to sixty degrees. They stand a lower temperature when flowering. Give them a compost similar to Begonias. Streptocarpus are very subject to mealy bug, but that insect may be kept in check by fumigating with hydrocyanic gas, one-half ounce to the thousand cubic feet. Canterbury bells always come in useful as a Spring flowering plant in pots. Go over the Spring sown batch and pick out as many of the largest as can be accommodated.

Late flowering Cosmos are very useful in the Fall. If they have not been grown in pots, plants that have been planted out may be lifted. If they are quite dry at the roots, they will soon recover from the operation.

Pot up successive batches of freezia. The colored ones are best for late work. If kept in light, and cool all Winter, they will flower as late as June. The early potted white variety will flower for Christmas in a rose house temperature.

Late struck Poinsettia cuttings make nice dwarf plants, ten or a dozen to an eight-inch shallow pan. Have them growing close up to the glass, which tends to keep them short and sturdy.

Get the place for the violets ready as they have to be in their Winter quarters by the middle of September. They delight in a heavy, rich loam. A friend of mine grows his violets in seven-inch pots in a small pit without any fire heat. He picks flowers all Winter, and in the Spring there is just a mass of flowers, making them useful for pot plants.

By the end of August the rose house is better if given a little heat circulating in a pipe or two, at the same time leave plenty of air on. They may now have a top-dressing of bone meal. Syringe in the early morning, and have as little moisture as possible over night. A dusting of air-slaked lime in the evening keeps the air sweet.

Very often around September 10, we have an early frost so that it is wise to make preparations to house all plants that are affected by light frosts, should a cool night threaten. Azaleas stand quite a frost, but their flower buds do not, so that if frost touches any, we are very likely to lose a season's flowers. These plants are now setting their flower buds, and any feeding that would encourage growth, should now be discontinued. Occasional waterings with soft coal soot water will keep the color on the foliage until they flower. This also applies to Acacias, Camellias and other hard wood plants.

Examine the Begonia plants; the stronger and larger plants may receive another shift if larger specimens are

(Continued on page 198)

Hardy Bulbs for Fall Planting

H. E. DOWNER

THE announcement made by the Federal Horticultural Board some time since that the importation of such bulbs as *Scilla*, *Muscari*, *Galanthus*, *Chionodoxa*, etc., would be again permitted was very gratifying to all those who love these beautiful Spring flowers, but the concession is limited to only three years, after which they are to be excluded again. At that time, also, the prohibition against bulbs is to be extended to *Narcissus*. Everyone, therefore, who has a garden would be well advised to plant these bulbs as generously as possible during this open period.

There are few places indeed where serious effort has been made to realize to the fullest extent their beauty and charm, and certainly no plants can surpass them in ease of culture. Outside the purely formal garden, the more informally they can be arranged the better. To see big drifts of *Squills*, *Crocuses*, or *Daffodils* flowering through the grass is a picture to be always remembered with pleasure, and such pictures could be displayed for the benefit of thousands of people in our public parks and gardens at comparatively small expense. In a small garden I know, containing many rare and beautiful plants, are some nice old apple trees beneath which in the early Spring there develops a picture of wondrous beauty. First comes the *Snowdrop*, pale but beautiful, and then the gay flowers of *Crocus*, *Scilla* and *Chionodoxa*. Thousands of these little bulbs are intermingled and very happy in a few square feet. After the foliage has ripened the mower is brought into play and this former patch of unusual loveliness is just lawn the rest of the season. One need not be a millionaire with extensive acreage to duplicate that.

Although the planting season is some time ahead, it is none too soon to be planning. If dormant bulbs could be had in the Spring the bulb business would increase, as we often meet people who would so love to have some in their garden but forget all about planting until they see them in bloom. Most bulbs are not very particular as to soil but they do appreciate a good soil with some body to it. It is not wise to use manure at planting time unless it is thoroughly decomposed. Leaf-mold is good, especially on heavy soil, and if it is thought that a little more assistance is necessary, bone meal is safe and much appreciated. There is no great reason for delaying planting after the bulbs are on hand, except sometimes force of circumstances.

If we dig up established bulbs in September we find they are well rooted. This brings up the question of planting bulbs in the herbaceous border and allowing them to remain from year to year. To my mind an herbaceous border is not complete without a good assortment of bulbs planted informally throughout. Their flowers show off well amongst the fresh young growth of the later flowering perennials, their ripening foliage is not conspicuous, and any gaps they leave can be well filled with annuals. There comes a time, however, when the border needs renovating and it is usually the middle of October before this can be done. I have never hesitated to dig up and divide the clumps of bulbs at that time, or even later, and have yet to see any ill effects from so doing. It is important, of course, to see they are not allowed to dry out while the changes are being made.

It often happens that *Daffodils* and *Tulips* are not planted deep enough; they should have at least four inches of soil over them. Another little detail worth looking after is to make sure that the base of the bulb is resting on soil. For all but the smallest bulbs, a broad trowel is

a better tool to use than a slim one or a dibble. As a Winter covering for beds, pine needles are very good, being easily cleaned off in the Spring and not heavy enough to interfere with the pushing young growth. Half decayed leaves are excellent for this purpose also. When planting in sod it pays to make generous sized holes to allow of some prepared compost being placed under and over the bulb. The art of planting in grass is to make it appear that, like *Topsy*, they "just grew." Anything resembling studied regularity is not nearly so pleasing. The important thing after flowering is not to cut the grass until the foliage has ripened off.

How encouraging it is, in the days when we seem to have had more than enough of Winter, to find the first *Snowdrops* in bloom. This dainty little barbinger of Spring is equally at home in the rock-garden, clumped in shady places in borders or scattered in grass. *Galanthus Elwesii* is a giant *Snowdrop* compared with the common *G. nivalis*, and is apparently more difficult to obtain. The Winter *Aconite*, *Eranthis hyemalis*, is usually listed with bulbs and a very cheery little plant it is with its bright yellow flowers and good clean foliage. It is quite happy in moist places beneath the shade of trees and shrubs. A little edging of *Crocuses* is very attractive in a front yard, but spread with a lavish hand in grassy places, they produce a marvelous effect. One of the special Spring features in the famous Kew Garden is the display of *Crocuses* in the grass. The newest varieties are much advanced in size. *Crocus Imperati*, *C. biflorus* and *C. susianus* are species, smaller flowering but earlier than the hybrids and are well placed in the rock garden. The small *Squills*, *Scilla sibirica* and *S. bifolia* are very lovely when thickly planted in grass, and if left alone in borders they increase quite rapidly. As a contrast to their flowers of deepest blue, a little of the white variety can be interspersed with good effect. *Scilla campanulata*, the Wood Hyacinth, is a larger and later type in colors of white, pink, and blue, very good to clump in shady places.

A small bulb not commonly seen is *Puschkinia scilloides*. It has white flowers lined with blue, closely resembling the small *Squills* to which it is an excellent companion.

The *Glory-of-the-Snow* is too lovely to be omitted from any Spring garden. With its blue and white flowers, hanging loosely from the stem, it gives a very charming effect in the rock garden, borders or grass. *Chionodoxa Lucillae* is the species generally planted, but the variety *grandiflora* has a much larger flower.

The *Grape Hyacinth*, *Muscari botryoides*, prolongs the season of blue and thrives well in practically any situation. The variety *Heavenly Blue*, is best, and there is a white variety which is very good for contrast. The *Feathered Hyacinth*, *M. monstrosum*, is an interesting oddity with its plume-like flowers.

The *Guinea Hen* flower, *Fritillaria meleagris*, would be a novelty for many and is a most interesting plant for the border or wild garden. The nodding, cup-shaped flowers are curiously striped and checkered in shades of yellow, white, and purple. Outside of real old-fashioned gardens, the *Spring Snowflake*, *Leucojum vernum*, is seldom met with. It resembles a glorified *Snowdrop*, a few weeks behind time, and is excellent for naturalizing and grouping in borders partially shaded.

Triteleia uniflora makes a very attractive edging along a warm sunny border with its pretty star-shaped flowers of white shaded to violet.

Daffodil time is a beautiful time in the garden, and

popular as the Daffodil is, a still more liberal use could well be made in most gardens. Few flowers show to better advantage when naturalized than the various forms of *Narcissus*. Along woodland walks, on banks, and in any piece of grass that is not good lawn, they display their charms to perfection. Planted about a pool or lake, their effectiveness is enhanced by reflection, and against evergreens they show up wonderfully well. In my boyhood surroundings, the Daffodil was a common wild flower and ever since I have preferred to see it looking as natural as possible. The several divisions and sub-divisions into which the *Narcissus* has been classified often leads to confusion, and many a Garden Club meeting could be enlivened by an innocent inquiry as to the difference between a Daffodil, a Jonquil, and a *Narcissus*. This confusion has not been recently brought about by the introduction of the numerous modern varieties as might be supposed, for Parkinson wrote three hundred years ago that "There hath been great confusion among many of our modern Writers of plants, in not distinguishing the manifold varieties of Daffodils"—and again he writes "Many idle and ignorant Gardeners doe call some of these Daffodils *Narcissus*, when as all know that know any Latine, that *Narcissus* is the Latine name and Daffodil the English of one and the same thing."

Such small flowered species as *N. bulbocodium*, *N. cyclamineus* and *N. minimus* are gems for the rock garden, their dainty flowers appearing very early. The true Jonquil, *N. jonquilla*, is well placed in the rock garden also, but the stronger kinds hardly belong there. *Narcissi* that have been flowered in pots should not be thrown away. A good place for them is in the shrub borders where they will be quite happy and give much satisfaction. It adds to the interest to have the different sections represented and to try out some of the lesser known varieties.

In the Trumpet section, where the crown is at least as long as the perianth, Golden Spur, Emperor, King Alfred, Van Waveren's Giant and Lord Roberts, yellow; Mme. de Graaff and Londliness, white; Duke of Bedford, Empress, Glory of Noordwijk, and Victoria, bicolor; are all first-class varieties.

In the *Incomparabilis* or chalice-cupped section, where the cup or crown measures up to three-fourths of the perianth, Great Warley, Sir Watkin, and Lucifer make a good trio.

The old reliable *Conspicuus*, Lady Godiva and Red Beacon represent very well the *Barrii* group, in which the crown measures not more than one-third the length of the perianth.

The *Leedsii* section is similar in form to the *Incomparabilis* and *Barrii* groups but the flowers are all either nearly white, or white and pale yellow. Mrs. Langtry, Duchess of Westminster, and White Lady are three of the best known varieties. The *Poetaz* group are hybrids between the *Poet's* and the *Polyanthus Narcissus*, a very sturdy free flowering race of good lasting quality. Three good ones are *Admiration*, *Elvira* and *Mignon*, which bridge the gap between the Trumpet Daffodils and the Darwin Tulips very nicely.

N. poeticus is distinguished by a pure white perianth of good substance and a flat wide cup shaded red on the edge. The old-fashioned Pheasant's Eye is worth planting in large quantity for naturalizing. *Ornatus*, King Edward VII, and *Glory of Lisse* are improved varieties.

Between the Daffodils and the Darwin Tulips, the stately Hyacinth seems likely to be receding in popularity. Its special place is in the purely formal garden where regularity is the keynote, but uniform rows of plants outside the vegetable garden are not regarded with much favor nowadays. However, the stiffness of a bed of Hyacinths can be toned down considerably by carpeting

with such Spring-blooming plants as pansies, English daisies, forget-me-nots and Arabis. Forget-me-nots under pink or white Hyacinths, and Arabis beneath a porcelain blue variety are simple but effective combinations. They show to very good advantage in the shrubbery, if irregularly grouped along the front. Early planting in good loose soil at a uniform depth of about five inches are preliminary details it will pay to observe.

The Tulip is an old established garden flower at present riding on a high wave of popularity. Parkinson in his "*Paradisus Terrestris*" (1629) described and figured many varieties. He classified the early-flowering group into forty varieties, embracing four colors; a middle-flowering group into sixty-five varieties, also under four colors; and a late-flowering group of five varieties. In these days, the early-flowering section has been eclipsed in the outdoor garden by the later Darwin, Cottage, and Breeder types, wonderful flowers in all shades of colors. Welcome as the early Tulips are, we cannot spare the room for them in a small garden but prefer to wait for the later beauties that make up for their tardiness by remaining longer with us. All the space possible in beds and borders can well be given over to them, for they can be left undisturbed to ripen off, planting in annuals between them if need be. They can remain, on the average, about three years undisturbed.

It is very difficult to look over a good assortment of varieties when making up a planting list and decide which ones to leave out. We should like to have the room and the means to grow them all. At any rate we can have plenty of enjoyment by browsing through a good bulb catalog.

Cottage Tulips, so-called because re-discovered in European cottage gardens, are distinguished from the early flowering section by their longer and more graceful stems and slender flowers, some oval, others pointed and reflexed. They afford a wide range of color and the general effect in the garden is very charming.

The Darwins present a more stately appearance with their taller upright stems. The cup-shaped flowers are also of greater substance, and seem to embrace about every shade of color but yellow. Breeders, which are seedlings with a tendency to "break" into mixed colors, resemble the Darwins in habit and form. They give some of the most rare combinations of art shades to be found in any flower and consequently are becoming very popular.

In contrast to these late flowering giants are the smaller growing species. *Tulipa Clusiana*, the Little Lady Tulip, is a gem with pointed flowers of white, striped deep rose. *T. Greigii* is brilliant scarlet, a gorgeous flower with pointed reflexed petals. *T. Kaufmanniana* has wide open flowers of carmine and yellow, opening early in April, a real beauty. *T. præstans*, scarlet, also comes early and usually has more than one flower to a stem. The fragrant, clear yellow *T. sylvestris* is also inclined to this multiliferous habit. They are not happy or long lived everywhere, but are well worth experimenting with in rock gardens or favored spots in borders, and are sure to give unusual pleasure if they succeed.

He who said, "There is no sentiment in business" forgot that business everywhere is conducted by human beings.

That's why we say "Flowers in an office make a better business day." A cheerful atmosphere makes thinking easier and puts vim into languid muscle. Petals of color, stems of green; the presence of just a few fragrant flowers will make those who come, remain or go, believe that "This is indeed a place where effort is pleasure and work is joy."

Late-Flowering Azaleas

BECAUSE they are unable from a botanical standpoint to separate Azaleas and Rhododendrons, botanists include them all in the genus *Rhododendron*. The original broad distinction was the evergreen *Rhododendron* with ten stamens. When species were introduced with these characters reversed or which did not fall into either group, there was nothing to do but sink one of the names in the herbarium. The popular name of Azalea will always, we must hope, be retained to indicate the most

vance of the species, which is only natural when an early-flowering pollen-parent is used. To obtain the object in view, breeding must be systematically focussed on the raising of seedlings, and the crossing of the latest to flower, for several generations.

The one thing we may be "up against" in the raising of a race of late-flowering Azaleas is that they will be at their best during the hottest weeks of the year. We know, however, that the wild Azaleas grow in shady damp situations, and we should do well to follow Nature more in our planting. The Cornish growers may have an ideal climate for *Rhododendrons*, which is half the battle, but they are also fully alive to the value of mulching. Here again we should follow Nature by mulching annually with leaves, using sticks to hold them in position. *Rhododendrons* and Azaleas are surface-rooting, with fine roots which drought will soon kill. Leaves keep the surface cool and moist in Summer and warm in Winter.

A peaty soil is by no means essential, for Azaleas thrive in a moist, loamy soil that is free from lime. Hard or close ground can soon be brought into condition by trenching and adding plenty of leaf-mould. While named sorts must be increased by layering, cuttings or grafting, the species can be freely raised from seeds. Much more should be done in the raising of seedlings from hybrids for woodland planting. The probability is, in such case, that these will give a wide variety, while there is always the possibility of something even better than the named parent plant.



(Courtesy of The Garden)

The White-Flowered "Swamp Honeysuckle," *Rhododendron viscosum*

beautiful family of hardy deciduous flowering shrubs cultivated in our gardens.

Most of the varieties are at their best from late April to early in June, with a wonderful wealth of blossoms during May. These notes are intended to draw attention to the possibilities of a race equally rich in colors, flowering from mid-June and throughout July. We already have several species flowering at this season, beautiful in themselves and with a delicious fragrance, but they lack the rich and varied shades of color so charming in the Spring



(Courtesy of The Garden)

The Flame-Colored *Rhododendron calendulaceum*

and early Summer-flowering hybrids. Some crossing has been done with these species already, and especially with *R. occidentale*, but the hybrids invariably flower in ad-



(Courtesy of The Garden)

The White-Flowered Form of *Rhododendron occidentale*

RHODODENDRON OCCIDENTALE.—This species was first introduced from Western North America, about the middle of last century. It is the best of the late-flowering section, being at its best about Midsummer Day and lasting well into July. For planting in open woodland with, possibly, a running stream we can scarcely wish for anything better. There are forms with white flowers and a yellow blotch, and others of pleasing pink shades. The deepest form at Kew is labeled *R. occidentale* var. *roseum*. By crossing this species with some of the earlier-flowering section Anthony Waterer has raised a number of hybrids with light-colored blossoms.

Not the least desirable character of *R. occidentale* is that flowers and foliage develop together, and added to this is a delicious fragrance. Eight to ten feet appears to be the ultimate average height of large bushes.

R. viscosum.—The white Swamp Honeysuckle is one of the last of the deciduous Azaleas to flower. Commencing in late June, the bushes blossom throughout July, the flowering period even extending into August in late districts. The flowers being among the smallest of the Azalea family, the name of Swamp Honeysuckle is most appropriate for this species. The color varies from white to those with buds and blossoms daintily tinted with pink. The delicious fragrance appeals particularly to ladies, and when this species is planted in sufficient quantity the scent is powerful enough to pervade the air.

R. viscosum was first introduced from Eastern North America in 1734. As a wild bush it favors the moist ground and swamps of Maine and Kentucky, its distribution extending from Canada to the Southern United States. Young plants commence flowering when one foot high and blossom each year with unerring freedom until the twiggy bushes are six feet to eight feet or even ten feet in height. The viscid or clammy character of the flowers is more pronounced in this species than in any other species of the American group.

The old florists are reputed to have used this species freely in raising the hybrid Azaleas of the first half of the nineteenth century, but in the desire for large flowers more attention has been given to *R. molle* and *R. sinense* as parents, with the unfortunate loss of much of the pleasing fragrance. Some of the oldest bushes in the Azalea Garden at Kew in the white, pink and rose tints of the flowers, fragrance and viscid character suggest *R. viscosum* as one of the parents.

R. CALENDULACEUM is the flame-colored Azalea of Eastern North America. It is a widely distributed species, and variable in the color of the flowers (red, orange and yellow) and the season of flowering. This is the species from which the rich coloring in many of the Ghent Azaleas was obtained. The early flowering of these hybrids suggests that the *R. calendulaceum* used was the form flowering in May or early June. Seedlings of more recent introduction are at their best about the middle of June. With their rich orange-colored flowers this form should be a valuable one to cross with *RR. viscosum* and *occidentale*.—*The Garden* (British).

GREENHOUSE AZALEAS

THE greenhouse Azalea is one of the most popular of indoor plants. With fair treatment and reasonable attention to their well being, the plants never fail to do well, and to outlive the greater portion of other hard-wooded kinds grown in pots. In fact, Azaleas are amongst the longest lived of the various tribes of greenhouse plants. In proof of this I may instance several large collections that are in the hands of some of the market growers near London, many of the specimens in which are known to be fifty years old. They consist mostly of the old white (*indica alba*) and Fielder's White, which is only slightly different from the original sort. The plants in question are full of vigor, and make shoots from eight inches to fifteen inches in length annually, only a small percentage of which fails to flower.

The weakening effects which turning out of doors has on plants whilst making their growth may be seen in hardy shrubs that have been flowered in pots under glass when treated in this way; the partially-formed shoots do not thicken, the immature leaves look yellow and sickly, and when the plants are again planted out and fairly cared for it usually takes two years to bring them round. It may be said that there is some plea to justify this way of treating Azaleas, inasmuch as most of what has been written on their cultivation is to the effect that the turning-out process is the right course to follow.

Another source of weakness that Azaleas, in common

with all other hard-wooded plants, suffer from is want of sufficient nutriment. In the case of pot plants of the numerous kinds that bear partial shaking out and re-potting annually, the old material which has become exhausted is gotten rid of and is supplied by new. With Azaleas and other things of like description, the nature of which is such that they will not submit to be treated in this way, the roots remain for years in the same soil, and unless something is done to make up for what the roots extract from it the whole becomes so poor that the plants cannot do more than exist in it. This especially is what takes place with old specimens that, after being put into pots as large as it is convenient to give them, shortly become dependent on what they receive in the shape of manure in some form. That old Azaleas can be kept for any length of time full of strength and vigor I have proved with specimens that have remained undisturbed in the same soil for ten years, and at the end of the time they made as much wood as when they were young. It may be well here to say that peat of even the best quality is not rich enough to enable Azaleas to make the growth they should do. The assistance that is required in this way to either get young Azaleas on quickly or to keep up the vigor of old plants is much more than seems to be generally supposed.

When ordinary manure-water is used for old specimens it should be given once a week during the time that the plants are making their growth, and up to the time the wood is approaching a hard, mature condition and the buds are prominent. After this stage has been reached it is doubtful if manure in any shape does not do more harm than good.

Regarding the new varieties of Azaleas, many of which have been sent from the Continent within the last score of years, it is doubtful if, taking all their properties into account, they are any improvement on the well-known older sorts. Some of them are an advance in the color and also in form of their flowers, if we accept the florists' circular outline as the standard to aim at. There is a long list of kinds in cultivation, which any good nurseryman's catalogue will supply. —*Gardening Illustrated*.

IN THE GARDEN AND GREENHOUSE

(Continued from page 194)

desired. The closer they are to the glass the better they will grow.

Crotons will take very little shade over them by the middle of September. Do not let water lie on their foliage for any length of time. To keep them free of insects, a thorough syringing with some standard insecticide once every ten days is sufficient. Mealy bug may be taken care of by fumigation with hydrocyanic gas. Crotons that lose their foliage during the Fall and Winter have been kept too wet overhead and at the roots. To grow them well a small house should be devoted to them.

Cattleya labiata is now finishing its growth, and by the middle of September any shading that is over it should gradually be removed. Cross bred orchids flower at all seasons, and are not like many of the species, which can be potted at certain seasons. As soon as any of them begin to show new roots, if they need a shift, they must be attended to. It is better to keep them slightly closer as regards atmospheric conditions, after potting. Also be more careful in watering until they are again established.

Grapes will now be ripe or fast approaching that state. Give abundance of air and keep a dry atmosphere until they are all cut. Pot vines that were forced early may now be gradually dried off. Just give enough water to keep the wood plump and firm. A few degrees of frost is good for them as they force the better after it.

Notes from an Old Country Garden

ARTHUR T. JOHNSON, F.R.H.S.

IN the June issue of the GARDENERS' CHRONICLE William N. Craig has some interesting notes on azaleas, and I am glad to hear that that fine American species, *Vaseyii*, is as popular in its native land as it is with us. There is, as Mr. Craig says, something extremely charming about this beautiful shrub, with its blush-pink, or pure white, blossoms, and it is a reliable bloomer every April with us. *A. viscosum*, the Swamp Honeysuckle, a compatriot of *Vaseyii*, is hardly less lovely and exceedingly fragrant. This fine species was very largely used by the



Romneya Coulteri

old hybridists, and many of our sweetest and best garden forms we owe to it. Much later in flowering than the foregoing, the blossoms of *A. viscosum* synchronize with those of the latest of all, the Californian *A. occidentale*. Being a deciduous species and one that flowers in July this azalea should prove as hardy as most of those usually considered frost-proof, and it makes a most delightful, loose-habited bush bearing good-sized, fragrant blossoms in a pure white, sometimes shaded with a rosy flush. I cherish many glorious memories of California's flower-filled valleys, but none of them are more vividly recalled than those of shoulder-high thickets of *A. occidentale* whose thronging masses formed the greater part of the undergrowth of a vast forest of deciduous oaks. Like so many of North American azaleas this Californian species has proved a first-rate "breeder" and to it also we are indebted for many of our most delightful late-flowing hybrids.

Another most fascinating little shrub among the Summer-blooming azaleas is *Rhododendron azaleoides*, and this again, though partly evergreen in some districts, may be considered deciduous and hardy enough for the bleakest climate Western Europe affords. Indeed, when one considers that the parents of *R. azaleoides* were *Rhododendron maximum*, the Great American Laurel, and the above-mentioned *A. viscosum*, one has a combination which suggests extreme hardiness and reliability. This pretty shrub, which grows up to three to four feet, usually opens its

flowers here about mid-June or later, and the large and bold trusses of white, lilac-tinted blossoms, which are most deliciously scented, then "carry-on" for many weeks during full Summer.

American shrubs are so much in evidence in my garden just now that I could hardly do better than refer to one or two more. One of these is that old favorite *Kalmia latifolia*. Though introduced two centuries ago this magnificent shrub is not yet commonly known. But it holds its own amid the influx of novelties and nothing will ever imperil the foremost position it occupies among the choicest of our Summer-blooming evergreens. The waxy, rosy-pink, pentagonal flowers are singularly lovely and this species is the only one of the *Kalmias* which is really prosperous in our rather dry, loamy soil, the others appearing to be more dependent upon a peaty medium. The flowers of *K. latifolia* are as interesting as they are beautiful, for if the point of a pencil is inserted into the centre of a blossom it will be noticed that one or more of the five stamens, each of which is bent back against an angle of the corolla, will be released and, recoiling like a steel spring, send a little puff of yellow pollen into the sunlit air.

Carpentaria Californica is hardy enough for any of our counties which enjoy a sea-influence and its rich green foliage and large, anemone-like, fragrant flowers make a rare combination. This is a lime-loving shrub which likes a warm, freely-drained soil no less than do its near relations the *Philadelphuses* (Mock Orange). We grow a goodly number of these latter, for they come into flower at a time when all the Spring things are over and, being practically drought-proof, they suit our light land. Here one can not do more than mention a few of the best, and I think the pure white, double-flowered, *P. virginale* must be accorded first place. This is a most striking shrub of some eight feet in height, the leafage is a deep green and the very large flowers, with their prettily incurved petals, are extremely chaste and refined. *P. grandiflorus* of the Southern States of America might be described as a greatly improved coronarius, the blossoms being whiter and the slight fragrance more delicate than those of the latter. Then there is the excellent hybrid, *P. voie lactee*, with single, milk-white blooms of great size and firmness of texture, and several varieties with purple-blotched petals, suggesting a *Cistus*, which are offshoots of the Mexican species, *P. Coulteri*. *P. Lewisii* is a N. W. American species whose great and distinct merits have not yet been fully appreciated on "this side," and the pretty *P. hirsutus* of California appears to be a more tender form of the same thing.

When *Fremontia Californica* goes over towards the end of July the great *Romneya Coulteri* opens the first of its superb blossoms, and from that time onwards to the season's end it stands unrivaled among the noblest subjects in the garden. I need not point out to American readers the outstanding magnificence of *R. Coulteri*, nor the singular beauty of *Dendromecon rigidum* which blooms at the same time. But there is another sub-shrubby plant which is grouped with the above in this garden, and which also is in flower at the time of writing, and that is *Lavatera olbia*. This is probably the most beautiful of all the mallows, a robust, sub-shrubby perennial which makes a large bush some four feet in height and five feet through with thick and hairy vine-like leaves. The flowers which crowd the elegant growths of this plant and which bear no little resemblance to those of a single Hollyhock are a fresh, silvery-pink deeply rayed with a rosy carmine. *L. olbia* will

flourish in any soil or situation which suits the *Romneya* plant. Like the latter, it is best cut hard back to the base in Spring.

Of the many fine shrubs and trees sent over by Mr. E. H. Wilson none is likely to create a more notable and enduring effect than *Spiræa* (*Sorbaria*) *arborea*. This splendid species, which hails from China, is easily the crowning triumph of its race and one for which the best place in the garden will never be too good. *S. arborea* belongs to the ash-leaved group of shubby meadowsweets, and it will attain the dignity of a small tree, sending up a number of tall, gracefully arched, whip-like branches with ruddy stems and very large, pinnate leaves. Towards the end of Summer these elegant branches terminate in enormous flossy plumes of creamy-white inflorescence which droop with the weight of their innumerable flowers with the most graceful effect imaginable. This admirable *spiræa* grows fast, needs plenty of space to display its singular loveliness and, though not fastidious as regards soil, a fairly rich and moist medium appears to suit it best.

Perhaps the most striking of all climbing plants of late Summer, and one that will continue to give color until the first frost comes along, is the Flame Nasturtium (*Tropæolum speciosum*). This gorgeous subject, though a South American, will, however, not prosper in all our gardens. Strangely enough it dislikes the warm south and flourishes most abundantly in Scotland where it has become naturalized in some parts. Here, on the west coast, we grow it on north walls, or among such shrubs as azaleas, zenobias, pieris and others which enjoy cool conditions, and it rewards us throughout the later months of the season with its abundant masses of brilliant scarlet flowers. Once established *T. speciosum* needs no more attention. It will sink its fleshy roots to a great depth and every year with unfailing vigor wreath and garland its supports with its wonderful ropes of color. Then as the flowers fade the seed ripens to a vivid china blue and, if propagation is to be effected by that means, sowing should be done at once, i.e., in the Fall. Roots are best planted in Spring, just when they begin to show signs of activity and they should be laid not less than nine inches deep. How the Flame Nasturtium stands the Winters of Eastern America I do not know, but in this country it is hardy enough to endure without injury the severest conditions.

Considered as a group the Evening Primroses (*Oenothera*) must always be accorded the highest merit among the herbaceous plants of late Summer, and among these I do not think any can excel the old *O. biennis*. Given a good form (*Lamarckiana* or *grandiflora*) this splendid subject will send its elegant stems to a height of four to five feet and bear a long succession of its lovely flowers. These, as most people are aware, are cup-shaped, some three to four inches across, very sweetly scented and a clear lemon yellow which is always so telling a color in the evening border. Though a biennial this species regularly keeps us supplied with a sufficiency of self-sown seedlings.

Less than half the height of the above is the perennial *O. fruticosa*, with its admirable forms, *Eldorado* and *Youngii*. These Evening Primroses are among the most reliable of their family in practically any soil, and their crimson buds and rich golden-yellow flowers are very striking. But when we come to these dwarf species from the more westerly States of America and Mexico a free, warm soil and not too hard a climate are essential. The best known, and possibly the hardiest, of these is *O. Missouriensis*. It is a trailing, herbaceous species whose flowers, like great goblets of gold, often five inches in diameter, are produced throughout the later months of the season. *O. taraxacifolia* might be described as a white form of the above, but it has deeply-toothed leaves and the trailing flower stems may extend a yard or more. Even more absolutely beautiful is *O. caespitosa* (*marginata*)

which, instead of trailing, sends up at intervals from underground stems tufts of gray-green, crimson-ribbed leaves with wavy margins. The flowers of this species are the largest of the family, often being six inches across. They are pure snow-white and emit a delicious magnolia-like odor. Another excellent species, also a native of North America, is *O. speciosa*, a sub-shrubby plant with rosy-pink flowers, and *O. arendsi* (eight inches) is apparently a hybrid from this, and a very good one too. The midget of the group is *O. punila*, a wee, rock-garden plantling of about four inches, which maintains a succession of bright yellow flowers from May to October.

Though there are many other excellent kinds among the *Oenotheras* the above are those most generally grown over here. American botanists have, I believe, undertaken a complete re-classification of the Evening Primroses, but of this I can claim no exact knowledge and make that my excuse for adhering to the old nomenclature.

THE SHRUBBY SPIRÆAS AND THEIR CULTURE

THE genus *Spiræa* contains some sixty to seventy bushy or shrubby species and a very considerable number of varieties. For garden decoration, however, twelve, or in extensive shrubbery borders twenty to twenty-five, species or varieties would provide a representative collection. They vary in height from the six inches to the nine inches of *S. decumbens* (*procumbens*) to the twenty-five foot to thirty foot of *S. arborea* and *S. Lindleyana*. Few families of shrubs provide such a lengthy season of flowering, which extends from March to October. The *Spiræas* are natives of Europe, North America and North Asia. A large number have white blossoms, and, mostly among the Summer and Autumn flowering kinds, those with pink and red blossoms are beautiful.

Obviously, shrubs which vary so much in stature and produce such a profusion of blossoms should be extensively planted not only in the borders and as single lawn specimens, but in large groups and masses in the pleasure grounds and on the boundaries of woodland. Some of the *Spiræas* are also adapted for waterside planting.

The cultivation of *Spiræas* presents no problems, and for this reason we seldom see their full beauty. The first desirable items are an open position and a loamy soil inclined to be moist rather than dry and sandy. This, however, is not all. In the fruit garden we trench and manure the ground for Gooseberry and Currant bushes, giving them also an occasional mulch of decayed manure. The shrubby *Spiræas* revel in such treatment, making plenty of young growths, which are the heralds of an abundance of blossoms. If, in eight or ten years after planting, the bushes show any signs of weakening, lift them and trench the ground—planting a fresh stock, or the healthiest pieces from the clumps lifted.

Scarcely too much stress can be laid on the importance of pruning *Spiræas*. Broadly speaking, they divide naturally into two large groups for purposes of pruning: (a) those which flower in Spring on the growths of the previous year and (b) those which flower in Summer and Autumn on the current season's growths.

The correct treatment for group (a) is to thin out the older wood and weak twigs as soon as the blossoms shatter. This serves to encourage vigorous new growth at once. If through any cause the bushes become tall and straggly, sacrifice a season's flowering and cut the shoots hard back in March.

Group (b) is best pruned in February or March. First remove old wood and weak shoots which can be entirely dispensed with, shortening back the remaining vigorous wood so that the resultant young shoots form shapely bushes. *The Garden* (British).

Rambling Remarks on Shrubs and Trees

FLORUM AMATOR

TO this genus of shrubs, *Eleagnus*, is well given the common name, Silver Thorn, because of the silvery under color of the leaves. The thorns of this shrub happily are not real thorns, but thorn-like growths devoid of the sharp points of true thorns. The small fragrant, dull yellow or yellowish white flowers, which are borne in thick clusters along the branches, are not particularly pleasing to the eye. In addition, to the silvery under color of its foliage and the fragrance of its flowers, another still more pronounced characteristic of the *Eleagnus* is its wealth of salmon-colored, or as in some cases, red or mottled berries ripening on its different species all the way from June to October. These numerous barberry-shaped berries are not only attractive because of their brilliant coloring but are useful as well for making tarts and sauce, and for eating out of hand, children especially being fond of them in the last way. This shrub, however, is primarily planted for ornamental purposes and not as an edible fruit-bearing bush. Other valuable characteristics of the *Eleagnus* are its free growth in sandy as well as other soil, along the sea coast as well as in the interior, the fruiting of the different species in different months covering a long range of time, and the fact that there are both evergreen and deciduous species.

E. longipes is the most widely known species of *Eleagnus* and is the most esteemed for its berries, which are red, and over one-half inch in length, ripening in June just after strawberries and just before currants and raspberries. The neat foliage with its silvery undercolor and the red fruit of this deciduous shrub, which attains a height of about eight feet, make it most valuable in mass effects.

E. parviflora is an older species than *longipes*; its leaves are smaller but have the beautiful silvery under color which is so noticeable a feature of this genus. Another feature of *parviflora* is its stiffness of growth which suggests its use as a hedge plant; in fact, it is often so used. Its pretty mottled salmon edible fruit, not as large as that of *longipes*, is dead ripe in August. This fruit which has the same pleasing acid taste as that of the other species of *Eleagnus*, is eagerly sought by children.

E. umbellata has the usual dull yellow fragrant flowers of the genus. When, however, its mottled salmon berries, thickly studding its branches, are ripe in October, it surpasses in beauty all the other species. The tall growth and late fruiting of this species place it among the ornamental berried shrubs of Autumn. Taken all in all, it is an ornamental shrub worthy of being freely planted.

E. argentea is, we think, our only native species; the rest are nearly all from Japan. The specific name, *argentea*, emphasizes the silver under color of the leaves; its value as an ornamental shrub is well known.

E. Simoni is an evergreen, hardy with some protection as far north as Philadelphia. Besides its evergreen character, *Simoni* bears its deliciously fragrant flowers, Jasmine-scented, some say, in October. These occasionally set a few red berries which ripen in Spring. This late flowering habit puts it in a class with *Hamamelis virginica*.

Some species of *Fraxinus*, the Ash, are planted for shade either as single specimens in suitable locations or as street or park avenue trees, where Plane and Elm would be too large. One species is grown as an orna-

mental flowering tree and one is best grown as a shrub for its handsome foliage. Several species grown as shade trees are valuable as timber.

Fraxinus Americana and *F. viridis* are both grown as single specimen shade trees. *F. Americana* or *alba*, as it is sometimes called, the White Ash, may be distinguished from *V. viridis* in the following way: *Americana*, or *alba*, grows taller than *viridis*; its leaves, which are retained much later than those of the latter species, are a grayish green on the under side and its seeds are in the lower and plainly bulging ends of the samara, or wings. *F. viridis*, on the other hand, has leaves of vivid green on both sides, which it sheds earlier than *Americana*, and its seeds extend half way up the samara, or wing, which does not bulge but tapers into a needle-like point. *F. Americana* is really the better tree because it holds its foliage longer. The planting of the White Ash as a lawn or street tree would be no experiment, as it has been used for that purpose and given entire satisfaction. Besides these shade tree ashes, there are *F. pubescens*, considered by some a variety of *F. Americana*, but smaller and with leaves of a reddish under color; *F. quadrangulata*, the Blue Ash, and *F. sambucifolia*, the Black Ash. The last two named may be planted with *Americana* for variety and, like the latter, are also valuable timber trees.

Then there is the European Ash, *F. Excelsior*, which is a good tree to plant as a single specimen in a suitable location, and its variety, called *aurea*, on account of its golden yellow bark which, as is the case with most trees with bright colored bark, is highest colored in the Winter.

F. aucubæfolia, so called because its leaves are yellow and green like those of *Aucuba variegata*, is best grown as a shrub or dwarf tree, since, when so grown, its pretty foliage—which, by the way, is best in Spring and early Summer—shows to far better advantage.

F. ornux, the Flowering Ash, the only species grown especially for its floral display, attains a height of only twenty or thirty feet. In June this Ash bears a wealth of handsome flowers, every twig being crowned with a cluster of fleecy white blooms. Hence it well deserves its name.

There are many species of *Euonymus*, some deciduous, others evergreen, growing mostly in shrub but some in tree and vine form. Generally the *Euonymus* is hardy, especially along the coast, south of the state of New York. The handsome foliage of the evergreen species, the berry-bearing habit of this genus, and the close clinging feature of the vine form make the *Euonymus* desirable for planting.

E. japonica comes to us from Japan, and is one of the most attractive of the broad-leaved evergreens; its shining green leaves and red-berried fruit strongly commend it to favor. In the north, it is better planted in sheltered locations, and for this reason is a good shrub for city gardens. Fine specimens of this species may be seen in southern New Jersey and in sea shore gardens from New York south. There is a beautiful variety of *japonica*, namely, *aureo-marginata*, whose glossy green foliage is margined with gold. There is another variety of *E. japonica* named *albo-marginata*, whose handsome evergreen leaves are edged with white. *E. japonica* and its varieties thrive in sandy soil, and are valuable, therefore, for sea shore planting. They are also excellent subjects for growing in tubs and pots.

E. Sieboldii, or *Sieboldiana*, is classed as an evergreen, but only retains this character in the South; in the North it drops its foliage when severe frost touches it. This species differs much from *E. japonica*, for its deep green leaves are not as thick and shining; its habit of growth is more bushy and its berries are orange-red.

E. alata is deciduous; the cork-like bark of its branches are four-winged; the almost innumerable red pods contain seeds covered with orange-red flesh, the display of which in contrast to its green leaves forms a bright picture. The flowers of *E. alata*, like those of all *Euonymus*, are greenish and not especially attractive. Its fruit and foliage are the beauty features. Sometimes in Autumn, the foliage assumes pleasing shades of color, just before it falls.

E. Americana is a native deciduous species, as is also *E. atropurpurea*, generally known as the American Burning Bush, but the latter is superior to *E. Americana*, which grows to a height of six to eight feet. Its branches are slender and very unlike those of *E. atropurpurea*, and its bright crimson seed capsules are warty, while those of *atropurpurea* are smooth and disclose on bursting bright scarlet seeds. The bright capsules and brilliant colored fruit within are the most attractive features of these species which commend them to planters of shrubs. They also explain the common names of Strawberry Tree, Strawberry Bush, Burning Bush and Bursting Heart, the first name being applied especially to *E. atropurpurea* when grown in tree form.

The European *Euonymus*, *E. Europæa*, brought in early days of American gardening from Europe, is still common in old gardens. The orange-scarlet color of its fruit helps to distinguish it from *E. atropurpurea*, whose fruit is of a deeper scarlet.

There is a comparatively little known *Euonymus*, namely *E. Hamiltoniana*, whose leaves are larger than those of *E. Europæa* and retain their color and form till late Autumn. The berries also of this species are of unusual beauty, the capsules which hold them being pink and the fruit orange-red.

Passing from the shrub and tree shapes of *Euonymus*, we come to a vine form, *E. radicans* and its variety, *variegata*. This species is a hardier vine than *Hedera helix*, English ivy, and very suitable for covering low walls and trunks of trees, but is a slow grower. It is a native of Japan, an evergreen, and clings closely and smoothly to stone, wood, or tree bark, but does not give the large effect of English ivy. We could not consider *E. radicans* and its variety rivals of the English ivy, but rather as a vine to be used when growth less luxuriant than English ivy is desirable and when the latter is not hardy.

We have used in spelling the generic name the older spelling, *Euonymus*; but the spelling more recently adopted is *Evonymus*, *v* being used in the first syllable instead of *u* as formerly. The later spelling appears to be etymologically correct.

The *Halesia*, Snowdrop Tree, is one of the prettiest of our smaller ornamental flowering trees or large shrubs. The several species bloom in the Spring and are so beautiful when in flower that they certainly deserve the names, Snowdrop and Silver Bell, which aptly describe them when displaying their white bell-shaped blooms.

Halesia tetraptera grows wild in Virginia and is the most commonly seen *Halesia*. This species is hardy as far north as New York, and in Connecticut along the sea coast. Grown as a tree, it reaches in time a height of twenty to thirty feet, and a few trees in old gardens have reached a height of forty feet.

Another species, *H. diptera*, a native of the Carolinas and southward, thrives as far north as Philadelphia, blooming about two weeks later than *H. tetraptera*, which

makes it desirable to plant with the latter species where the climate permits, as the two afford a succession of beautiful flowers in Spring.

Halesia Meehiana, perhaps hybrid, is very distinct from *H. tetraptera* and *diptera*, both in its habit of growth, which is more bushy and less rampant, and its smaller and more clustered leaves and smaller flowers. This, as well as the other mentioned species of *Halesia*, has the gratifying habit of beginning to flower when only a few feet high, and of growing into a small tree, if it is so desired, when confined to a single stem.

There is a truly beautiful little tree from Japan, introduced into catalogs as *Pterostyrax hispidum*, which botanists say is a *Halesia*, though its flowers look very different. They appear in Wisteria-like racemes and show well in late May amid large leaves. As this tree has a spreading habit of growth, it makes a fine shade tree.

FIVE-TEN TENNIS FOR THE SMALL LAWN

THE new game of Five-Ten which has recently come out is an excellent substitute for lawn tennis where the garden is not sufficiently large for a full-sized court. It is excellent practice for tennis, and can be played and enjoyed by one player—and the space required varies from one-half to one-sixth of the area of a tennis court, which means that it can—if required—be played even in a large room.



(Courtesy of Gardening Illustrated)

Five-Ten Tennis Court on Small Lawn

The apparatus is inexpensive, and consists of a frame, the upper part of which is wood and the lower netting—the height of a tennis net. In the centre of the frame, above the netting, is a gap, three feet above the ground, with a pocket to receive the ball. The minimum size of the court is seven yards by three and one-half yards, and the maximum twelve yards by seven yards. The service is played from the base line, and the object is to serve the ball into the pocket. If successful this scores a point; if missed and the ball rebounds from the board it acts the same as in tennis, and is received by the opponent, and is followed up by each player alternately until it is placed into the pocket, hits the net, or goes out of bounds. In the first case it counts a point to the striker, and in the two latter against the striker.

It is an excellent game and requires skill and accuracy, and affords splendid practice for stroke play for tennis—both for back and fore hand—and improves the eye.

Those people who are looking out for a really good garden game should see Five-Ten played, and I think they will come to the conclusion that they have found the thing they want. *Gardening Illustrated*.

Some New Hardy Plant Introductions

ARTHUR SMITH

DURING recent years no part of the world has been more fruitful in worth-while plant discoveries than western and northern China; worth-while by reason of the fact that the climatic conditions of that region render its flora to be for the most part capable of making itself at home in the more northern districts of America and of Europe.

Among the newest of these plants is *Clematis tangutica* obtusiuscula introduced into Britain from China by Farrer by means of seed. Plants from these seeds arrived at the seed-producing stage themselves several years ago, and it has been of course very easy for plants to be produced in America by the same means.

This *Clematis* is especially noteworthy on account of its, for the genus, unique floral characters, its flowers being of a yellow color and bell-shaped. While yellow is not unknown among other species of Chinese *clematis*, as several different ones have been sent to Britain during recent years, the species mentioned is distinctly the best.

The first yellow-flowered *Clematis* was introduced into Europe from northern China in the year 1731, but did not come into general cultivation. *Clematis tangutica*, a native of central Asia, was introduced into Kew in 1898, and figures in the "Botanical Magazine" 7710 under the name of *C. orientalis* var. *tangutica*; this is now classed as a separate species.

Seeds of the variety known as *obtusiuscula*, which is the subject of this note, were subsequently sent to Britain by Wilson, Purdon and Farrer from Kansu and Szechwan, and the resulting plants have proved in every way superior to the type. At the Royal Horticultural Gardens, Wisley, it has proved a vigorous grower, bearing from July onwards, as Farrer describes it, "innumerable blossoms that hang in a mass like big Fritillaries of pure unchecked gold." The flowers, about four inches across, are borne singly upon stiff stalks five inches long, and later in the year they turn into a beautiful mass of snowy silk. While plants from seed begin to flower at an early age, my seedlings have not yet reached that stage.

Incidentally it may be mentioned that this plant frequently bears a second crop of flowers in September. From all points of view it is a decided and valuable acquisition among our climbing plants.

One sometimes hears the well known hardy *Buddleia* of our gardens, *Buddleia variabilis magnifica*, complained of as being coarse and ugly in its manner of growth. This characteristic can, however, be easily remedied by proper pruning; in fact, Nature frequently performs this operation when in exceptionally severe Winters the plant is killed to the ground, although we have never known it killed outright.

During his botanical explorations in China, a few years ago, Farrer discovered many forms of *B. variabilis* in the Kwantung district, and in the Nan-Ho valley he found a form with smaller leaves and larger flower-spikes, and he speaks of it as "growing especially neat and small, dainty-leaved and brilliant," so he sent home seeds of it in the hope that the form would prove constant. The plants raised at Wisley from these seeds have adhered to Farrer's description, the difference in height, etc., being apparently constant, and its habit is somewhat similar to *B. Veitchiana* with erect arching branches on a smaller scale, so that it forms a neat, round bush about three and a half feet tall, and its lacking of the coarse, sprawling habit, especially if uncared for, of *B. variabilis magnifica*, undoubtedly makes it an acquisition to our gardens, par-

ticularly in small ones. This plant has been named *B. variabilis nanhoensis*. Like all members of the genus it should have its previous year's growth hard pruned. I am not aware how soon it blooms from seed, but seedlings grow rapidly and am expecting to have plants in bloom this year from seeds sown late this Spring.

I am trying out some new *Berberis*, of which *B. aggregata*, not hitherto, I believe known in America, bids fair to have unique foliage characteristics; also a new *Pyracantha*, these and others will be fully described in a future issue.

Obviously there is nothing in the regulations of the F. H. B. which prevent the introduction of new—or old for that matter—species of worth-while plants.

THE NOMENCLATURE OF GARDEN VARIETIES

THE bewildering host of names attached to the varietal forms of garden plants and vegetables is becoming an increasing source of vexation to the gardener who tries to maintain an up-to-date knowledge of modern horticulture. But nobody would attempt to find fault with the increase of the number of varieties, provided these had definite claims to being distinct from those which had preceded them. It is obviously disappointing to buy seeds of a so-called novelty which, when grown, proves to be too similar to another sort to warrant a different name. It is still more vexing to grow a supposed new variety which proves to be nothing but an old and familiar sort. Of course, in many cases the production and putting into commerce of spurious novelties are purely accidental. The raiser is unaware of the existence of a variety which his imagined novelty so closely resembles. At other times, however, the distributor of the spurious novelty has been induced to re-christen an old sort for the sake of the increased price which is usually asked for a new production. One refrains from excess of criticism in either case. In the first instance the error is due to ignorance, while even in the second case one may sometimes find reason for justification. It is possible that the raiser may have grown a particularly fine strain of a certain type, and in his somewhat pardonable pride he considers his production worthy of a new name. But he is apt to overlook the fact that others, too, may raise equally fine strains, and if each raiser assumed the responsibility of re-naming such varieties it is easy to see the amount of complexity which is bound to arise. The only legitimate course, therefore, is for the raiser to adhere to the original type name and prefix the word "improved" with his own name attached. The purchaser would then know what he was paying for, and if he chose to pay a little more for Smith's Improved this or Jones's Selected that, so much the better for both the raiser and grower. This, of course, is done by most of the big seed houses, and the public know where they are.

Most readers will agree with the suggestion that the indiscriminate introduction of flower and vegetable novelties is not in the best interests of horticulture. There are thousands of gardeners who are always ready to lay out a little money each year on new introductions, but if these willing purchasers have been induced to buy so-called novelties, which are new in name only, they will lose faith, and the many introducers of genuine new types will suffer in consequence.—*Gardening Illustrated*.

Use and Arrangement of Bearded Irises

THE choice of position in the garden for Bearded Irises is a matter that depends to a very great extent on the garden. It would be absurd to attempt to devote a portion of a small or even a moderate-sized garden to Irises exclusively. It is also unnecessary. Where space permits it is a very excellent arrangement for many reasons, but it must be remembered that, wonderful as is the range of color and diversity of form, the flowering period is restricted to certain months in the year, and that when out of flower they are no more attractive than many other plants that are just as indispensable.

In gardens where space is limited there are two positions in which they can be used successfully. One is in the vacant spaces that always occur in the front of shrubbery plantings. Bold masses planted in such positions are always attractive during the flowering period, and even when there are no flowers the sword-like green or gray foliage adds a useful note to the shrubbery. Used in association with flowering shrubs they are most effective.

But whether the shrubs are evergreen or deciduous flowering, the introduction of Irises among them will always produce some wonderful effects.

The colors of the Irises have to be rightly chosen, and either contrast or harmony can be achieved. There are, for instance, some evergreen shrubs with cool gray foliage at Iris-time. With these as a background it is impossible to go wrong. The violet and blue shades of the Irises will melt softly into the tone of the shrubs, or the warmer-colored forms light up to more vivid splendor by virtue of the contrast with the coldness of the shrubs' tones. Wistarias grown as bush specimens also associate well with Irises.

Some gardens are too small to have room even for a shrubbery that offers much opportunity for this sort of treatment, but few are so small that they cannot afford space for them in the herbaceous border. Nor is there any place in the garden more suitable for them, and startlingly beautiful effects can be obtained by associating them with other perennial plants in this way. A May or June border in which are planted groups of Irises in positions in which they borrow from some plants or lend to others some charm of combination is by far the happiest result that can be achieved throughout the garden year. Years ago, it was discovered that one of the best plant combinations was Lupins and Irises. Since then both plants have progressed enormously in the color range offered to the gardener. For some time it has been truthfully asserted that there is no other genus that has the color wealth of the modern Bearded Iris, and now hybridists offer us Lupins of innumerable intermediate shades ranging from pure white to black purple and maroon, through every shade of pink, blue, violet, cream, buff, orange and even crimson. Here, then, is a wealth of color large enough to meet the most exhaustive demands that may be made on it, and the garden-lover who cannot have his or her heart's desire in color combination with them, lacks the knowledge to choose the right material.

It is all very well for some very good gardeners, both amateur and professional, to scoff as they do at what they call "color fads in the garden." True, sometimes this color arrangement is carried to extremes, and where harmony is aimed at monotony is often achieved. I have heard it argued that Nature never groups her colors. Nor does she. Nature makes no attempt to harmonize the music of the woodland, such as the warbling of birds and the sound of falling water. But in music the sounds are arranged, and in good painting the crude color is rejected

and softened to fine harmony. All sound and all color is of Nature, and it is only its selection and arrangement that makes art. The very essence of good gardening is that it selects, civilizes and arranges.

So in planting the Bearded Irises, if by care in color association the true value of the plants can be emphasized, the delicacy of tone of some brought out, the vivid richness of others strengthened, this is assuredly desirable.

In the herbaceous border every group of Irises should form a selected picture. The potential variety of color grouping is so great that it is impossible to particularize in the present article, and in any case the selections for color grouping must be left to individual desire. A group of dark purple Lupins will suggest to some a splash of the brighter golden yellow Irises, to others a grouping of the amber, bronze and copper tones. A group of pale yellow Lupins will likewise produce in some a desire for the combination of rose shades of Irises, in others the richest of violets. The brighter, bluest violets of the Irises are not good when planted in association with the bluest of the Lupins.

In the larger garden, wherever it is possible, the finest results of all are obtained by devoting a portion to the cultivation of Irises primarily, just as one does for Roses. Gently undulating land, grassy paths winding between banks of the glowing tints and exquisite forms of the modern Irises, offer a realm of endeavor well worthy of the most enthusiastic exploration. Informality in arrangement is preferable and color grouping desirable, and this is easy now that most catalogs divide the Irises up into color groups and state height and time of flowering.

One word of warning. There is a tendency to plant all sorts of things in grass. "Naturalizing" it is called, and some very charming effects are obtained in this way when the right material is used. Do not, however, do it with the Bearded Irises. It is not naturalizing them but murdering them. They will not stand it, and if they are to succeed the grass must be kept clear of their roots. So long as the grass of the path is kept even a few inches away they are happy. Another warning is, do not plant them in dense shade and expect them to do more than grow foliage luxuriantly for a time. To flower they must have sunshine, and the more they get the better they like it. *The Garden.*

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 192)

ber. I have used Achimenes in the same way and they have flowered for months. Passers by would ejaculate, "Look at the lovely baskets of petunias!" Petunias are good basket plants, so are the trailing forms of blue lobelias, while nothing could be finer than the ivy leaved geraniums, especially the pink ones. These are not the only flowering plants available by any means, but they include some of the better known sorts. Given a generous soil and plenty of water, basket plants are a great asset for use not alone in the greenhouse, but in pergolas, piazzas, and porches. Anyone who has tried one or two will want more the following year. With window boxes and hanging baskets a very sombre looking home can be wonderfully beautified. There are a number of foliage plants well adapted for basket culture, amongst which are English ivy, Kenilworth ivy (which is fine grown with fuchsias), Asparagus Sprengeri, Coprosma Baueriana, Tradescantia, green and variegated Vincas.

Foreign Exchange Department

A ROSE WITHOUT A RIVAL!—HIAWATHA.—It may appear presumptuous to say of any particular Rose that it is without a rival, or even to claim for it some distinguishing characteristic over others, in these days when there are so many beautiful varieties, but beauty is fleeting and the fairest Rose of the morning has often lost much of its charm by noon! Hiawatha (a single sort, too!) is different from any other. Of that there is no shadow of doubt, and its very remarkable trait is the longevity of its blossoms. As we know, who grow it, it yields numerous crimson clusters with golden anthers and, when the latter fall, there is revealed a white centre to the petals which rather increases their attraction than otherwise. It is these clusters so lavishly produced which often in a hot season will last three or four weeks before the petals fall, while in a normal season they will continue in beauty longer than this. As a grower of Hiawatha from the time of its introduction I know of no other Rose for which one can prefer a similar claim and, certainly, there is no variety that is better adapted for clothing with flowers for the longest possible time an arch or pergola. Its staying power is unique.—*The Garden.*

ORIENTAL POPPY MOGUL.—So far as size goes, Mogul appears to be the finest of the scarlet smooth-edged Oriental Poppies of the present day. It was well exhibited at the last Chelsea Show, and appears destined to meet with much favor from those who appreciate these noble Oriental Poppies, which are nowadays such a conspicuous feature of the June flower garden. Looking back on the time when we had only the ordinary orange-scarlet typical *Papaver orientale* and that fine one, still in favor, *P. orientale bracteatum*, it is amazing the advance made in these flowers and the increasing popularity they have gained. Mogul deserves to be remembered when planting time comes round.—*Gardening Illustrated.*

CALIFORNIA BLUE BELL (NEMOPHILA MENZIESII).—By far the most beautiful of the family is the above, a bed of which is one of the most lovely features of the garden at the present time, and this in spite of a wealth of other lovely alpine flowers also in bloom. The seeds were sown in their present position in September last, as this is by far the most satisfactory method of treating this exquisite annual. The flowers are of the most exquisite sky-blue, with a white centre, and each one and one-half inches across, the bed containing them resembling a carpet of blue from a distance. Many have been the admirers of this little flower during the past few weeks, and yet it is one so easily obtained if only gardeners would sow the seed in Autumn on well-drained soil instead of in the Spring, for if sown at the latter time the effect cannot be compared with that of plants sown in Autumn. There is a fine selected strain, known as *grandiflora*, with larger blooms and a very charming white form, also a claret-colored one, *purpurea rubra*, but the beauty of the above is unsurpassed.—*Gardening Illustrated.*

THE WHITE-HORNED VIOLET (VIOLA CORNUTA ALBA).—Very pretty is this free-flowering plant as it clothes the face of a low wall with its pure white flowers. Although this lovely kind is not so often seen as the mauve and purple kinds, it is equally effective and just as easy to grow, coming true from seeds. Unlike many of the Tufted Pansies, it does not appear to be so easily affected during periods of drought. Of perennial character, this plant makes fine broad edgings and groups, and, being free in growth, may be increased to any extent, either in Autumn or Spring.—*Gardening Illustrated.*

THE RIGHT RESULTS IN FLOWERS.—No nation shows more artistry in flowers than do the Japanese, and they secure their lovely effects with the least expenditure of material. See them arrange a couple of sprays of Flowering Cherries in a plain vase, and what a delight it is; whereas a massed pot soon wearies. How do they attain to it?—By study of Nature's methods, and learning the harmony of colors. It takes time, but the results are worth it.

In contrast, consider the average arrangement of flowers in most homes: Crude bunches of assorted blooms, in vases or surroundings which positively cry aloud from the outrage of clashing color or redundant grouping. A few pointers may be acceptable—

Small flowers for a small room.

In a flowered vase, flowers create an anti-climax.

To place flowers in front of a picture, is unfair to the flowers and unfortunate for the picture.

Think of your walls not as something to be hid but rather as backgrounds for appropriate color.

In arrangement, remember Nature and not the massed bloom of an ordinary Florist Shop.—*S. African Gardening and Country Life.*

THE OPENING AND CLOSING OF WATER LILIES.—Investigations in the past and again recently on the opening and closing of Water Lily flowers show that it is due to the action of sunlight, and the absence of sunlight respectively. The common white Water Lily opens at 5 A. M. at Upsala, Sweden, but not until between 7 A. M. and 8 A. M. at Innsbruck, Austria; and in both cases this coincides with the shining of the rising sun upon them. The flowers close at 5 P. M. at Upsala, and between 7 P. M. and 8 P. M. at Innsbruck. This is due to the fact that the sun rises earlier at Upsala than at Innsbruck, during the flowering season. The flowers never open at exhibitions unless the sun shines upon them, though the exhibitors may be expert growers. If the flowers are cut while open they can certainly be enjoyed for a time, but they should be as fully exposed to sunshine as circumstances permit. Tepid water might delay their closing towards the end of the day.—*The Garden.*

PRIMULA SIKKIMENSIS.—I often wonder why more people do not grow the Sikkim Cowslip (*Primula sikkimensis*). Perhaps the reason is that it is not always a long-lived plant. It seeds very freely, and it is easy to raise seedlings. It is best to sow the seeds as soon as ripe, but it is not always safe to do this in the open ground. I put the seeds in sandy soil in a pot in a frame, where they remain plunged in ashes during Winter. In Spring a good many young plants appear, but I leave the pot untouched, except that I pick out the little seedlings which have appeared when they have made a pair of their second or true leaves. By leaving the pots for another Spring I get an additional number of seedlings, as the seeds do not always germinate the first year, although a bigger proportion does if they are sown as soon as they are ripe.—*Gardening Illustrated.*

CLIVIA MINIATA.—The merits of the Clivia as a handsome-foliaged and flowering plant are by no means so fully recognized as they should be, particularly by the amateur with but a single greenhouse, for it is by no means difficult to cultivate, and is effective at all seasons. When in good condition the long strap-shaped leaves are of a particularly rich green tint, and when they are well overtopped by a rounded head of blossoms a large specimen forms a most imposing feature. It is also a good window plant, and may be kept in health for a long time in a dwelling-house.

The soil best suited for the different Clivias should consist mainly of good yellow loam, lightened by an admixture of sand, nodules of charcoal, and leaf-mould. The best time to repot is immediately the flowers are past, and in carrying this out it is very essential that the pots be clean and well drained. After potting, the plants should be kept in the greenhouse, giving them a good light position. When the pots are well filled with roots, water may be liberally supplied, while overhead syringing is, in the height of Summer, very beneficial. In Winter much less water should be given, as in this way the plants get a partial rest. When large they can be kept in health for years without repotting, in which case they are greatly assisted by an occasional watering with weak cow-manure and soot-water mixed, taking care that it is quite clear, as if at all thick it is apt to clog up the drainage and the plant will then soon fall into ill-health.—*Gardening Illustrated.*

A USEFUL ANTIRRHINUM FOR WALLS.—The homely and old fashioned Snapdragons, varieties of *Antirrhinum majus*, are so well known—indeed, so universally popular that they need no word of description or recommendation. However, *Antirrhinum asarina* is quite a different plant, and is a very charming little thing that deserves to be much grown where conditions are favorable to its well-being. Some of the healthiest and most floriferous plants I have seen were growing on the face of an old stone wall, a position which was evidently exactly to their liking. Being of trailing habit, the stems hung down over the stones, draping them with festoons of soft green, woolly foliage, and for the greater part of the Summer goodly numbers of comparatively large creamy flowers with yellow throat were to be found pushing up between the leaves. The latter bear but little resemblance to the *Antirrhinum* generally grown; indeed, it might almost be mistaken for some hoary-leaved *Campanula*, but the flower is quite of the familiar Snapdragon form. In addition to positions on walls, this plant is well adapted to cultivation in fairly dry pockets on the rockery, and in shallow pans it makes a very effective plant. It is not sufficiently hardy to withstand full exposure in bleak windswept spots, neither will it survive where the soil is surcharged with stagnant water, but in sheltered, well drained places it will do well. A point in its favor is that seeds germinate freely, and the young seedlings quickly attain to flowering size.—*The Garden.*

THE ROCKETS.—If one has a love for a really beautiful and showy old-world flower one should grow the Rocket, *Hesperis matronalis*, which is deliciously scented, especially in the evening.

... flowers in color over an extended period. This is a hardy perennial, varying in color from pink and purple to red, reddish purple and white. There are both single and double forms, the double white being grand. All varieties, in addition to their imposing appearance in the borders, are splendid for cutting and reach a height of about a yard. Propagation of the single forms can be effected without the least difficulty by seeds sown in Spring, but the most satisfactory way of increasing fine forms is by division. This should be done in July or August by lifting the entire clump and splitting it up into single pieces, which are then at once replanted either in the reserve garden or their permanent positions. Where one has a stock of established plants, these can safely be transplanted either in Spring or Autumn. To increase the splendid double sorts, such as the Scotch and French varieties, the easiest method is to strike cuttings. These can be obtained from the parent plants about the middle of June, and should be trimmed clean of the larger leaves at the base and immediately inserted in a bed of light gritty earth in a cold frame. Avoid overwatering, but keep moist at roots and rather close for a week or two. Light overhead sprinklings are a great assistance in keeping the foliage fresh until roots form. Once roots are formed the frame can be lifted off so as to expose the plants fully to air and sunshine. Early in Autumn the plants may be placed in their permanent quarters.—*The Garden*.

SWEET ROCKET IN THE GRASS. I grow a good number of the single-flowered Sweet Rocket, as it is so useful for cut bloom, but until this season I was not aware that it would thrive in the grass. The finest specimen I have ever had is growing among quite rank grass and is self-sown. Therefore, this Rocket is evidently one of those things that can easily be naturalized in the wild garden and woodland. A few plants set out in the Autumn would, perhaps, be the easiest way, for my experience is that if this Rocket is allowed to form and shed its seeds every year young plants will spring up, and these self-sown plants invariably make strong growth and bloom profusely. A colony of this Rocket is very attractive, as the flowers vary in color from almost white through shades of pink to almost crimson.—*Garden-illustrated*.

RANUNCULUS ACONITIFOLIUS.—Though an old plant, this is not seen in gardens as often as it might be, for it is of the easiest culture in any fairly good border soil that is not too dry, and it is as beautiful in foliage as it is in flower. An herbaceous species, it appears in early Spring and makes a bold clump some eighteen inches high of ruddy, angular stems and smooth, deeply divided leaves. These are followed by a galaxy of white blossoms about one inch across of remarkable purity and elegance. There is a double form, our old friend "Fair Maids of France," or Bachelor's Buttons, in which the blossoms are each congested into tight little wads of white, which are not comparable to those of the type where beauty of form is a consideration, though they may last longer. This double variety is, nevertheless, the one more commonly seen in cultivation.—*The Garden*.

THE CULT OF THE ZINNIA.—To those unaccustomed to Zinnias, disappointment sometimes dogs their footsteps when growing them for the first time. To the uninitiated they are somewhat of an enigma, an annual which gives one the impression that they are robust, when, in reality, they are not; and if planted out too soon are frequently retarded. They love a rich, light soil, and above all a sunny position. I have found they do best when planted out on a wall border having a south aspect. In the Summer of 1921, with its weeks of drought, Zinnias held their own and bloomed more freely than many other annuals, some of which succumbed. Most people are anxious to complete their garden arrangements before May is out, but one has to remember that it is a month, not infrequently, of extremes of temperature and unless quarters similar to those described can be selected for the plants, it is better to allow them to remain in frames a week or two longer. Zinnias continue in bloom longer possibly than any other annual, so that it is unwise to hurry them out of doors before genial weather conditions prevail.—*The Garden*.

Brief Horticultural Jottings

... part of Spring, we well remember that, unless the powers behind Quarantine 37 change their minds, this innocent bulb is to be forbidden in three years. You can't imagine Spring without its hosts of daffodils dancing in the breeze? The pest hounds at Washington can. If they could, they would forbid the breeze because it carries spores of a pest which would destroy the daffodils. Spores become a season when pests awaken to their nefarious work! How-

ever, this is the cloud—no bigger than a pest hound's hand—that presages the coming storm. In these three years we must stock our gardens. After that the narcissus will join whiskey and be forbidden these shores. Perhaps the day will come when bulb-leggers from Holland will anchor outside the three-mile limit and garden lovers in small boats will sneak out under cover of night to buy their share of Spring glory.—*House & Garden*.

The Cambridge Botanic Garden, England, recently celebrated its three hundredth year for it was started on July 25, 1622. A number of notables gathered at the garden to celebrate the tercentenary of this famous institution, which while not large, has played a big part in the development of horticulture. In 1637 it contained some 3,000 species. Morison's History of Plants was partly written by Prof. R. Morison, an early curator, while he was in charge of this garden and completed after his death by J. Bobart, who succeeded him. *Florists' Exchange*.

The army of flowers is at last assaulting the unsightly places of the national capital. George W. Hess, director of the Botanic Garden, is the leader of this peaceful army and is the moving spirit in the effort to get appropriations from Congress for the extension and modernization of the garden. President Washington had a project for a botanical garden in 1796, but took no action in the matter. The history of the Botanic Garden since Washington's time is a story of half-hearted support by Congress and half-way successes of some non-governmental bodies and movements to interest the citizenry.

After Mr. Hess had aroused the enthusiasm of a number of Senators and Representatives who had authority in the affairs of the garden, legislative approval was secured. The proposal was submitted in detail to the fine arts commission, where it received cordial approbation. On a triangular plot, south of the propagating gardens, a show house, 45 x 112 feet, is to be erected. Beyond this triangle, a crescent-shaped strip of land, part of which is used for the storage of junk, discarded vehicles and similar undecorative objects, will give way to Mr. Hess' plan for beautification. When Congress meets again an appropriation, probably of \$800,000, will be asked. *Florist Review*.

At North Church, N. J., the Board of Freeholders is making a fight to save the 300-year-old Oak, which, according to the authorities, is impeding the motor traffic. It stands almost in the center of the highway and orders have been given to a contractor to remove it, although one property owner has offered land, so that the road can be diverted. The tree sheltered George Washington and is said to bear visible traces of the message of victory he carved upon it. The removal of the tree was ordered because motorists declare it to be a menace.—*Exchange*.

Comments from Our Readers

On reading July's number of the CHRONICLE, of which I am a keen follower, both for its interesting and helpful articles, I came across the section headed, "Comments from Our Readers," emphasizing the fact that cultural notes, etc., were encouraged and specially dedicated to the young class of gardeners. Therefore, I am venturing on my first attempt, hoping that my boldness will stimulate others who are more adept. I am employed as assistant gardener. Having charge of the "Kitchen Garden" and being instructed that the owner was specially fond of obtaining head lettuce regardless of season or climatic conditions, I set forth to try my best, which led me to different experiments. The one that I am endeavoring has proved a success and I am sure is worthy of consideration and trial.

West End, New Jersey.

FREDERIC HEUTTE.

(Mr. Heutte's remarks on heading lettuce appear on page 212.—*E. C. H.*)

Mr. Craig's note in the last issue of the CHRONICLE, on the tendency of certain Tulips to throw more than one flower to the bulb, reminded me of an unusually fine specimen of the Darwin variety, "Farncombe Sanders," which occurred in a planting I made a few years ago. This bulb produced five flowers—four from the center of the bulb and one, the smallest, from an offset. What would our bulb-growing friends not give to be able to produce any quantity of bulbs having this multiflorous character well fixed? The bulb was from the variety "Philippe de Commines" frequently divides about half way and bears twin flowers, equally as good as any borne singly. Other unusual features I have noted in Tulips have been the occasional production of a bulblet on the flower stem and flowers having eight petals, eight stamens and four pistils.

Panthersville, N. Y.

H. F. DOWNER

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

1923 Convention, Pittsburgh, Pa., August 14, 15, 16, 17.

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

CLEVELAND, O.: R. P. Brydon, chairman; Arthur Brown, Cleveland, secretary.

NORTH SHORE OF ILLINOIS: James A. Wilson, Lake Forest, chairman; John R. Clarke, Glenview, secretary.

THE ANNUAL CONVENTION

As the August number of the GARDENERS' CHRONICLE goes to press, the members of the National Association of Gardeners are gathering in Pittsburgh for their annual convention to be held at the Fort Pitt Hotel, August 14, 15, 16, 17. To have awaited the report of the proceedings of the meetings for this number would have delayed publication too long, so that they must be withheld until the September issue.

We have, however, secured a copy of the President's address and the Secretary's report which are being published in this issue.

Late reports from Pittsburgh indicate that the convention will be a most successful one with a large attendance of members from different parts of the country, and with the local members well prepared to provide for the comfort and enjoyment of the visitors.

THE PRESIDENT'S ADDRESS

It is indeed a great pleasure for me to welcome you on behalf of the National Association of Gardeners to the "Smoky City." Again we meet in convention to review what has been accomplished during the past year and to make plans for the year to come. Many more, I am sure, would be with us were it at all possible for them to get away. Assistant gardeners are almost unobtainable, and day labor is beyond reach for our work, because business is such that wages are being paid far beyond what many owners of private estates are prepared to pay.

Let us hope that 1924 will be better. I believe that we ought to be optimistic, especially since we now have visions of the young men entering the profession through the training offered by some State colleges. These young men will be able to relieve gardeners and superintendents for short periods at least while they are preparing to fill our places eventually. The talk of low salaries being offered is fast diminishing, and rightly so, thanks to the efforts of the National Association of Gardeners. I think that the time is not far distant when gardeners' salaries will compare favorably with any of the other professions. What is needed is publicity of some kind that will set forth the advantages to be obtained by being employed in such healthful occupation; the satisfaction of achieving something through contact with Nature; and the compensations received which cannot be measured in dollars and cents.

Honesty and fearlessness for the right will always be rewarded, and while there are employers who are not above being suspicious, it is to be regretted in many cases that they have been made that way by many of the so-called gardeners, whom, I am pleased to say, the National Association of Gardeners has and will continue to bring to light as time goes on.

It has been my good fortune to hold office during the inauguration of the course at the Massachusetts Agricultural College in co-operation with the national association. While the number of students was not all that was hoped for, the coming term holds forth greater promise. It might be of interest at this time to announce that the Pennsylvania State College has acquired by the will of a wealthy resident of the State a fine estate, comprising some two hundred acres, which will be at the disposal of the faculty for horticultural training. They are willing, I understand, to co-operate with the National Association of Gardeners along the lines of the Massachusetts Agricultural College. When this subject comes up for discussion at our business session, I hope you will give it your earnest consideration and that a workable solution may be derived.

An unfortunate incident occurred during the present administration when the integrity of the gardener and his profession was attacked, but the association ably defended the cause for which it stands (thanks to our worthy secretary) which created a closer fellowship between the local gardeners' organizations and the national association, for practically all local organizations east of the Mississippi and some west of it passed resolutions endorsing the action of the national body. Let us at all times be ready to guard zealously the interest of our association and what it represents, whether it be the individual's, association's or the press, strike out for the right without hesitation. I might call attention at this point to the fact that while the officers of the association are ready and willing at all times to do their full share, without the co-operation of the members at large, they are handicapped in their efforts to advance the cause of the profession, and that this lack of co-operation is not always due to an unwillingness on the part of the members to do their part, but rather to the inclination to "pass it along to Sweeney."

The secretary's report will show that while we have lost some members during the year, the new members acquired will offset the loss, and the membership has therefore not diminished. It is to be regretted, however, that more members have not induced their employers to become sustaining members. The events at New York, Boston and Pittsburgh clearly illustrate how much interest estate owners have in the gardeners' national association. To those who contemplate doing so, I suggest that they emphasize the point that our association is by no means a labor union in any sense of the word, but a means to an end whereby gardeners of the proper training can secure better positions and employers obtain the services of better gardeners.

I am pleased to draw your attention to the interest being manifested in the local branches. It is not so long since we had only one; last year we had five, and before the end of the year that number will be doubled. There is no doubt in my mind that if we are to advance for good, it has to come through the local branches. We may have to amend our Constitution and By-Laws, but that surely is permissible in an association such as ours.

ness to be transacted, it was to be expected that we should see some of the best of the world's goods in the country. But in Pittsburgh, otherwise known as the "Work-shop of the World," we cannot begin to boast of things horticulturally, though what you will see is creditable indeed, when the effort, which must be spent under somewhat adverse conditions, is considered. Industrially, you may see and judge for yourselves, referring to the "Work-shop of the World." I may be pardoned for repeating, for I am sure it will be of interest to many from a distance, some of whom may look with scorn upon the smoke, but let it be clearly understood, that when we have no smoke, we have no business. Pittsburgh leads the world in the manufacture of iron, steel, glass, electric machinery, tin plates, air brakes, fire bricks, white leads, cork and aluminum, pickles and preserves. Pittsburgh products have an annual tonnage two and a half times greater than New York and Hamburg combined. The value of Pittsburgh's manufactures is two and a half billion dollars a year, which exceeds that of each of forty States. Pittsburgh is the center of a county whose assessed valuation is greater than that of each of thirty-six States in the Union. Pittsburgh has labor pay-rolls of two and a half million dollars a day. Pittsburgh's banking surplus is one hundred million dollars, and is exceeded only by New York and Philadelphia. Deposits per capita are the greatest in the United States. Sewickley, where you will visit some of our estates, is Pittsburgh's leading suburb.

I should like to say a few words in closing with a view to expressing my appreciation of the co-operation and hard work of our local committees. They have met with obstacles and disappointments but have nevertheless worked out what I consider will prove to be a very interesting, instructive and amusing convention, and while I am delighted to have the honor of welcoming you today, the credit for your enjoyment belongs to the men on the committees.

THE SECRETARY'S REPORT

The past year has been a very gratifying one for the association, in which progress has been the keynote. Interest in the activities of the association has increased on the part of gardeners' local organizations throughout the land and greater enthusiasm has been manifested among the local branches than heretofore.

The association was called on during the year to defend the morale of the gardener and his profession, due to an indiscriminate act before one of the state legislatures. While the incident attracted some publicity, it did not, however, act to the detriment of the gardener or his profession, but on the contrary, it drew attention to what the association is striving to accomplish for the profession which it represents.

A loss of seven members through death was sustained during the year, and seventeen through resignation, due to gardeners turning to other vocations where inducements appear more enticing than in their own profession. Ninety-eight active and associate members were enrolled, and nine sustaining members were also added to the association's membership.

LOCAL BRANCHES

Although the early efforts of the association to organize local branches did not meet with immediate success, the efforts put forth were not wasted as what has been accomplished this past year shows. For a long while, Newport, R. I., was the only branch in existence. This branch was followed by the St. Louis, the Nassau Co., L. I., the Boston, and the Western Pennsylvania branches. This Spring a branch was organized in Cleveland, which has since been followed by the North Shore of Illinois branch. At the present time, Jacksonville, Fla., is organizing a branch to be known as the Northern Florida branch. The members of these branches have found that at their meetings, opportunities are presented to those who are not always able to attend the conventions, to make recommendations to be submitted to the annual conventions; that assistance is assured in planning and carrying out the annual conventions; and that lively and worthwhile discussions also occur on subjects pertinent to the gardening profession, which is not possible at meetings of gardeners' local organizations where matters of purely local interest occupy the major portion of the time. It is believed that before the end of the year, other branches will be announced. As the number of branches increases, greater co-operation will develop between these branches whereby the gardeners in the different territories will come into closer fraternity.

THE SERVICE DEPARTMENT

The Service Department did not have occasion to fill many important positions this year for the reason that few such positions were offered. There, however, appeared to be more than the usual number of minor positions, many of which did not call for trained gardeners. The high cost of labor created some positions for trained men, where heretofore only handy men were engaged. The experiences have been so satisfactory that employers

report the difference in expenditure, between engaging a trained gardener and a handy man, has been well worth while. Single men have been especially benefited in this respect. However, the Service Department should not be looked upon as merely an employment bureau for its scope extends far beyond. Instances of estate owners visiting New York, some from distant points coming to the secretary's office, to discuss the problems of their estates are not unusual and have often resulted in considerable benefit to their gardeners.

ON TRAINING YOUNG MEN

There has not been as much progress made in interesting young men in taking advantage of the co-operative course offered by the Massachusetts Agricultural College and the association as might be desired, due largely to the expense that must be incurred by the young men who are non-residents of the State of Massachusetts, and who must pay tuition fees, while free tuition is granted the residents of the state. The Massachusetts Agricultural College appears satisfied with the first year's results and is looking for an increased enrollment this Fall. If other state colleges would adopt a similar course, it would prove beneficial to young men of those states who would be interested in taking up such a course. Mr. Robert Cameron, before sailing for Europe, wrote to the secretary, urging him not to overlook bringing up this important subject at the convention. He stated that he is employing four college men who are proving more than satisfactory, and that he believes the future of the young gardeners can be solved if further attention is given to their educational opportunities. Another member has written the secretary that he thinks it is just as essential to educate young men along executive lines as to educate them on the growing of plants and otherwise instruct them horticulturally. He contends that estate owners are equally interested in properly kept records and accounts as they are in well raised plants. A young man who takes a horticultural course should develop enough intelligence to be able to keep his accounts straight on the average estate. In fact, the Massachusetts Agricultural College includes business methods and English in its course, which should be sufficient to broaden the scope of a young man's mind and enable him to adapt himself to many conditions which may arise in his life's work, and with which he may not have had previous experience.

ON PROFESSIONAL ETHICS

Much stress is placed from time to time on improving professional ethics and business methods from which the horticultural trade is not excluded. The association directs attention that it was one of the first organizations, identified with horticulture, to go on record as in favor of improving professional ethics and business methods, not alone in the pursuit of horticulture but in all vocations. It passed a resolution to that effect at its annual convention held in Cleveland in 1919, and its stand remains unchanged. It may be added that the efforts of the gardening profession in recent years towards the advancement of its standard has been no less progressive than those of other professions, which can be readily confirmed by any interested investigator. Applying the Golden Rule in business, and out of it, individually and collectively, will prove the most effective remedy in curing all business ailments.

A WORD ON "RUMOR-MONGERS"

The despicable practice, which is not a new one, of circulating false rumors, either through ignorance or with malicious intent, often resulting in severe hardship to the ones against whom they are directed, seems to be increasing rather than decreasing. The association during the past Spring has been called on to suppress several rumors which on investigation were found to have no foundation. The rumors usually refer to a gardener's position, that he is leaving or is being discharged, and so the employer, after he has been flooded with applications for the position, believes that there must be some truth to the report that his gardener is leaving his employ, and forthwith dismisses him without even an opportunity for an explanation.

The secretary believes that the time has arrived when the association should decide on some policy to mete out merited punishment to the "rumor-monger" who maliciously injures another, whether the guilty one be an active or associate member. The By-Laws already provide power and certainly dismissal is none too severe a penalty.

OUR DECEASED MEMBERS

Since the convention in Boston last year, the secretary's office has received notice of the passing of the following members: Sustaining, Frank J. Dupignac, Mamaroneck, N. Y.; Active, William Gray, Newport, R. I., M. J. O'Brien, Mt. Kisco, N. Y., Douglas Smith, Katonah, N. Y., E. Stuart Smith, Spring Valley, N. Y., Frank E. Ehrler, Pittsfield, Mass.; Associate, John S. Hay, Philadelphia, Pa. It is possible that there are other deceased members, of whom the association has not been informed.

OUR SUSTAINING MEMBERS

There is no doubt there are many owners of country estates who would willingly give their support to the association if invited to do so. If our active members would make an effort to interest their employers, our sustaining membership would materially increase. Estate owners who never before heard of the association are often directed to it by those who are numbered among our sustaining members.

INCREASING OUR ACTIVE MEMBERSHIP

The secretary is certain that many members would be surprised to learn of the number of gardeners, who appear never to have heard of the association, notwithstanding the publicity it has received during the past years, and how readily they become interested when approached on the subject. If each member would undertake to enroll but one new member, it would mean much towards strengthening the influence of the association in its field of endeavor.

M. C. EBEL, Secretary.

BOSTON BRANCH

Due to the unusually hot weather, there was not as large an attendance as anticipated at the Boston branch meeting, held at Horticultural Hall, Boston, on July 31. It was nevertheless an interesting one with the discussions on varied subjects lasting well over two hours. A good representation from Boston and vicinity may be expected at the Pittsburgh convention.

NASSAU CO. L. I. BRANCH

A meeting of the Nassau Co. L. I. branch was held at Oyster Bay, L. I., on July 27. A general discussion ensued on what had been accomplished by the association in the past year and satisfaction was expressed on the part of the members present, the local branch endorsing the association's action. James Andrews of Oyster Bay, L. I., was appointed a delegate from this branch to the Pittsburgh convention.

WESTERN PENNSYLVANIA BRANCH

A meeting of the Western Pennsylvania Branch and the Pittsburgh Florists' and Gardeners' Club was held in the Carnegie Library, Pittsburgh on July 17 with Manus Curran, chairman, presiding, for the purpose of discussing plans for the social evening during the convention under the auspices of the club. The following applications for membership were endorsed by the branch, Edmund Ruprecht, James Stewart, William V. Beeler, and Thomas Tyler. A letter was read from John R. Clarke of Lake Forest, Ill., requesting information on the objects of this branch, which information the secretary was instructed to give.

A meeting was also held on July 31, with Manus Curran, chairman, presiding. Detailed reports of their preparations for the convention were presented by the chairmen of the various committees. By a rising vote, Manus Curran was unanimously elected to represent this branch at the convention. The application of Mrs. Mitchell, Pittsburgh, for sustaining membership was referred to the New York office. The following applications were endorsed for membership, Sabin Bolton and Hiram A. Frishkone. Everything is in readiness for what is hoped to be a successful convention.

HENRY GOODBAND, Secretary.

CLEVELAND BRANCH

A meeting of the Cleveland branch was held at the Alhambra Restaurant, August 6, Robert Brydon, chairman, presiding. It was decided to ask for a conference to be held during the time of the National Show to be staged here in the Spring of 1924. The opinion was also expressed that a booth at the show would be advisable. Frank L. Balogh was elected as delegate for this branch to the coming convention at Pittsburgh. The applications for membership of George W. Duncan, John Buckley, and Albert P. Longland were endorsed by the branch. The next meeting will be at the Alhambra Restaurant, Euclid Ave. and 105th St. on September 4, with dinner at seven o'clock.

ARTHUR BROWN, Secretary.

NEW MEMBERS

Sustaining: G. W. Hill, White Plains, N. Y. (Sidney Tranfield, gardener); C. A. Coffin, Locust Valley, L. I. (Joe Boehler, gardener); Mrs. Louise C. Moore, Mentor, Ohio (Frank L. Balogh, gardener); Mrs. C. Douglas Green, Mamaroneck, N. Y.; Miss L. T. Morris, Philadelphia, Pa. (John Tonkin, gardener); Miss J. G. Seaman, Poughkeepsie, N. Y. (Fred Cotterell, gardener). Active: Thomas E. Tyler, James Stewart, Sabin Bolton, Pittsburgh, Pa.; William V. Beeler, Haysville, Pa.; Edmund Ruprecht, Shields, Pa.; Michael F. Salmer, Joseph K. Brower, Alfred Addor, Jacksonville Fla.; Steven Dietrich, Greenwich, Conn.; Harry F. Carter, White Plains, N. Y.; M. B. Kannoowski, Grand Forks, N. D.; George W. Duncan, John Buckley, Youngstown, O. Associate: Hiram A. Frishkone, Pittsburgh, Pa.; Albert P. Langland, Cleveland, O.

AMONG THE GARDENERS

Daniel Whyte, for twenty years head gardener to Winthrop Ames, North Easton, Mass., has been appointed head gardener to Samuel Appleton, "Broadmere," Marblehead, Mass.

Harry Coles, of Wellesley, Mass., succeeds Mr. Whyte as gardener to Winthrop Ames, North Easton, Mass.

Robert Weeks has resigned his position as superintendent to Charles K. King, of Mansfield, Ohio, to accept a similar position on the new estate of Guerdon S. Holden, Cleveland, Ohio.

Earl Robertson, gardener for the past four years under Robert Brydon, superintendent, on the Mrs. F. F. Prentiss estate, Cleveland, succeeds Mr. Weeks as superintendent to Charles K. King, Mansfield, Ohio.

W. H. McDonald accepted the position of gardener to Edwin McClellan, Cambridge, N. Y.

Max Aubertel has accepted the position of gardener at Manetto Hill Farm, the country estate of R. Schwarzenbach, Hicksville, L. I.

THE EDUCATIVE VALUE OF FLOWER SHOWS

The ever-increasing number of horticultural societies proves beyond doubt that gardening is one of the favorite pursuits of all classes of the community. Equally noticeable is the desire to excel in the production of flowers, fruits and vegetables, and even in shows of but modest ambitions the competition is keen. That such exhibitions possess a distinct educative value cannot be disputed. They encourage a spirit of generous emulation, they teach self-restraint to the competitors, and they point out in no uncertain fashion just how and where the exhibits of the unsuccessful competitors fall short. In exhibiting, the amateur, of course, stands upon an entirely different footing from the private gardener. The former may decide whether he will compete at any given exhibition and exactly what he will stage. The private gardener, on the other hand, must, generally speaking, obtain the consent of his employer. Some employers readily grant this permission—nay, they encourage the gardener to compete at flower shows. Others object altogether to the idea, and refuse permission—in which they are quite within their rights. They state their objections somewhat in the following way: Gardeners, if permitted to exhibit, usually make up their mind at the beginning of the season as to the classes in which they intend to compete. Having decided, they concentrate on these things, and devote more time to them than to the remainder, which have to put up with perfunctory treatment, with the result that, all over, the average is lowered. I venture to express the very strong opinion that this is quite a mistaken idea. Granted that here and there a gardener may devote all his energies to the production of a limited number of subjects for competition, yet the majority will bear me out when I say, without fear of contradiction, that when a gardener is encouraged to exhibit the tendency is towards a leveling upward all round. No real gardener could tolerate a magnificent bed of onions, grown for show purposes, and a mediocre or indifferent crop of peas or cauliflowers. Similarly with flowers. Carefully thinned, shaded and staked, carnations or dahlias for exhibition would be a striking commentary on a poor or weed-infested flower garden; while a few giant gooseberries grown for the show bench would ill repay a general crop decimated by mildew or devoured by caterpillar. My experience—a tolerably wide experience—is to the effect that where the gardener, professional or amateur, is a keen exhibitor there will be found all-round crops of superior quality. As has been already said, the educative value of exhibitions is great, for gardeners, by comparing their own produce at shows with that of their competitors, are enabled to locate and to remedy faults in their treatment. The interchange of opinions, too, and the friendly criticisms which are passed at flower shows, also add to the knowledge of the exhibitor. Look at the whole question of exhibiting from any angle, and the conclusion forced upon the observer is that, from an educative point of view, the modern horticultural society is doing good work, work which is not appraised at nearly its proper value even by some of those who profess to be devoted to, and deeply interested in, the advance of horticulture.—*Gardening Illustrated*.

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The association makes no charge for any service it may render to employer or member.

LOCAL SOCIETIES

DAHLIA SOCIETY OF NEW JERSEY

The Dahlia Society of New Jersey will hold its first Annual Dahlia Show at the Robert Treat Hotel, Newark, New Jersey, on Thursday, Friday and Saturday, September 13, 14 and 15.

The organization, though but six months old, has grown rapidly and its members are full of enthusiasm, working hard for its success. They have taken not only the large ballroom but three large rooms adjoining. There will be every encouragement both for the amateur and commercial grower with medals and prizes donated by many outside organizations. Applications for entry may be made to Mr. Charles Walker, 264 East 32nd Street, Paterson, New Jersey.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting of the above society was held in Greenwich, July 10, and was well attended, between fifty and sixty members being present. One member elected and three nominated for membership.

It was decided to hold the Fall Flower Show September 12-13-14, at the Y. M. C. A., Greenwich. Last year the show was a success and the profits of \$2,000 were divided between the Port Chester and Greenwich Hospitals. Again this year the show is to be held for the benefit of the two hospitals, and it is hoped a larger amount can be raised for them. The garden clubs of Greenwich, Rye, and Riverside are again uniting with us for the show which is to be on more elaborate lines than any previously held in this vicinity.

William H. Waite, of Rumson, N. J., noted for his Dahlia culture, gave us a lecture on "The Dahlia." His talk was thoroughly enjoyed by all and was one of the most instructive we have heard for some time. A rising vote of thanks was tendered Mr. Waite for his splendid lecture.

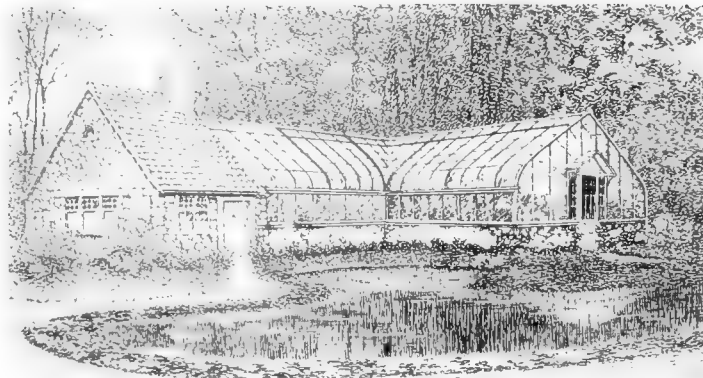
Very keen competition is being had for the A. N. Pierson and J. H. Troy fund and the society's medals, very good exhibits being shown at the meetings. George Baldwin received first for a Cattleya Hardyanna which was a splendid exhibit of this type. Edwin Beckett also exhibited a Cattleya Hardyanna receiving second. T. F. Chrystal received third for a collection of Sweet Peas. Other exhibits included a very choice vase of Hollyhocks, "Newport Pink," George Hewitt; Caladium and Kœlreuteria paniculata, W. D. Robertson; vase of Japanese Iris, Nicholas Vasiloff. For a collection of vegetables John Andrews received first and H. F. Bulpitt second.

ANDREW KNEUKER, Cor. Sec'y.

NASSAU CO. HORT. SOCIETY

The regular monthly meeting of this society was held on July 11. Vice-president Thomas Scott occupied the chair. Steven Misakawisy was elected to active membership. Messrs. Trepas, Milstead, and Nevins judged the exhibits, giving J. W. Everitt first with 12 mixed gladioli; 3 heads of cabbage; 25 string beans. There was one petition for active membership. The dahlia show will be held on Sept. 27 and 28. August exhibits will be of 6 ears of corn; vase of mixed perennials; 25 lima beans. The annual picnic will be held on August 9. Mr. Harder addressed the meeting on rat extermination, and Mr. Martin spoke on tree surgery.

ARTHUR COOK, Cor. Sec'y.



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After thirty-one years of continuous service William P. Rich has resigned as secretary of the Massachusetts Horticultural Society. Edward I. Farrington has been chosen to succeed him.

Mr. Rich, who is now seventy years old, has seen many changes in the Society during his long tenure of office. In that time the library, which is housed on the top floor of Horticultural Hall, has become the finest and most complete horticultural library in America. Indeed, it is often called the best library of the kind in the world. It contains 25,000 books and is particularly rich in rare volumes of the sixteenth and seventeenth centuries. Mr. Rich will continue with the Society as an assistant in the library.

Mr. Farrington, the new secretary, is well known as a lecturer and magazine writer on horticultural subjects. For some years he has conducted the Boston Sunday Globe's garden column. Mr. Farrington was formerly associated with Suburban Life and for the past four years has managed Horticulture.

The Massachusetts Horticultural Society has also taken another very important step in acquiring Horticulture which will be continued as its official organ. This paper was established by the late William J. Stewart in 1904. By having an organ of this kind the Society will be able to greatly widen the scope and extent of its work.

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ON HEADING LETTUCE

FREDERIC HEUTTE

A TRENCH was dug 18 inches deep and 18 inches wide, the soil being thrown on both sides, 3 inches of humus was spread at the bottom, topped with 3 inches of soil; a double row was planted, the plants alternating. Pea brush was then laid crosswise on the trench until the plants recuperated from the shift, then removed and again shaded when signs of heading prevailed. This resulted in 95 per cent good heads of the amount planted. The varieties tried were "Wayahead" and "Salamander" sown May 18, both answered well to the treatment. The first picking was obtained July 22, "Wayahead" taking the lead. All remaining heads are well formed and show no signs of "bolting," whereas the same planting under ordinary conditions and treatment have not headed to satisfaction and have long past. The important point is that moisture, the principal item, is under better control as a hose was just inserted in the trench and flooded when required.

Mr. Thompson, the superintendent, shares my opinion that it is worth while doing, when quality heads of fine crisp lettuce are required during the season, when it seems to be beyond control of "bolting."

THE POSSIBILITIES OF THE GLADIOLUS

AT a regular monthly meeting of the Garden Flowers Society of Indianapolis, A. E. Kunderd, gladiolus specialist, was the principal speaker. Mr. Kunderd said: "The Gladiolus is fast becoming recognized as one of the most universally adaptable and useful of all Summer flowers. Its possibilities are just beginning to be realized. It is not an ornamental plant like a canna or coleus, and yet it adds great charm either to the border or among

roses, shrubbery, etc., and is unsurpassed as a garden attraction and as a cut flower. Matthew Crawford once said 'It has few equals and no superiors. None are more beautiful and there is nothing in sight to supersede it.'"

After speaking of its history, its improvement, and possibilities of still further improvement, Mr. Kunderd added that there is much to be said on culture and growing, but never forget that the three greatest essentials to successful growing of gladioli, as of most anything else, are good soil, good and frequent cultivation, and plenty of water during the growing season. Well grown gladioli are very superior to those less carefully grown. Gladioli should not be planted too deeply as their roots are less liable to feed in the soil which is above the bulb level. In shallow soils this is important. Deep plowing or spading of soils is desirable but must be done with reference to the depth of the surface soil, as deep spading of shallow soils would bring to the surface too much of the sub-soil. A covering of four inches of soil above the corms is generally considered about the best. Mellow loam or sandy soils are better adapted to somewhat deeper planting than is a clay or heavy soil. By successive plantings from early garden making time until late in June, then following with plantings in the greenhouse from about August 10 on until the following March, one may now have blooms of these magnificent flowers almost the year round.

As a variation of the theme "Plant gladioli in your shrubbery and hardy flower borders," he recommended planting other flowers with gladioli to see what a beautiful garden one can achieve. That is, feature the gladioli, using such annuals as zinnias and marigolds to carry out the color schemes and keep continuous blossom in the beds.

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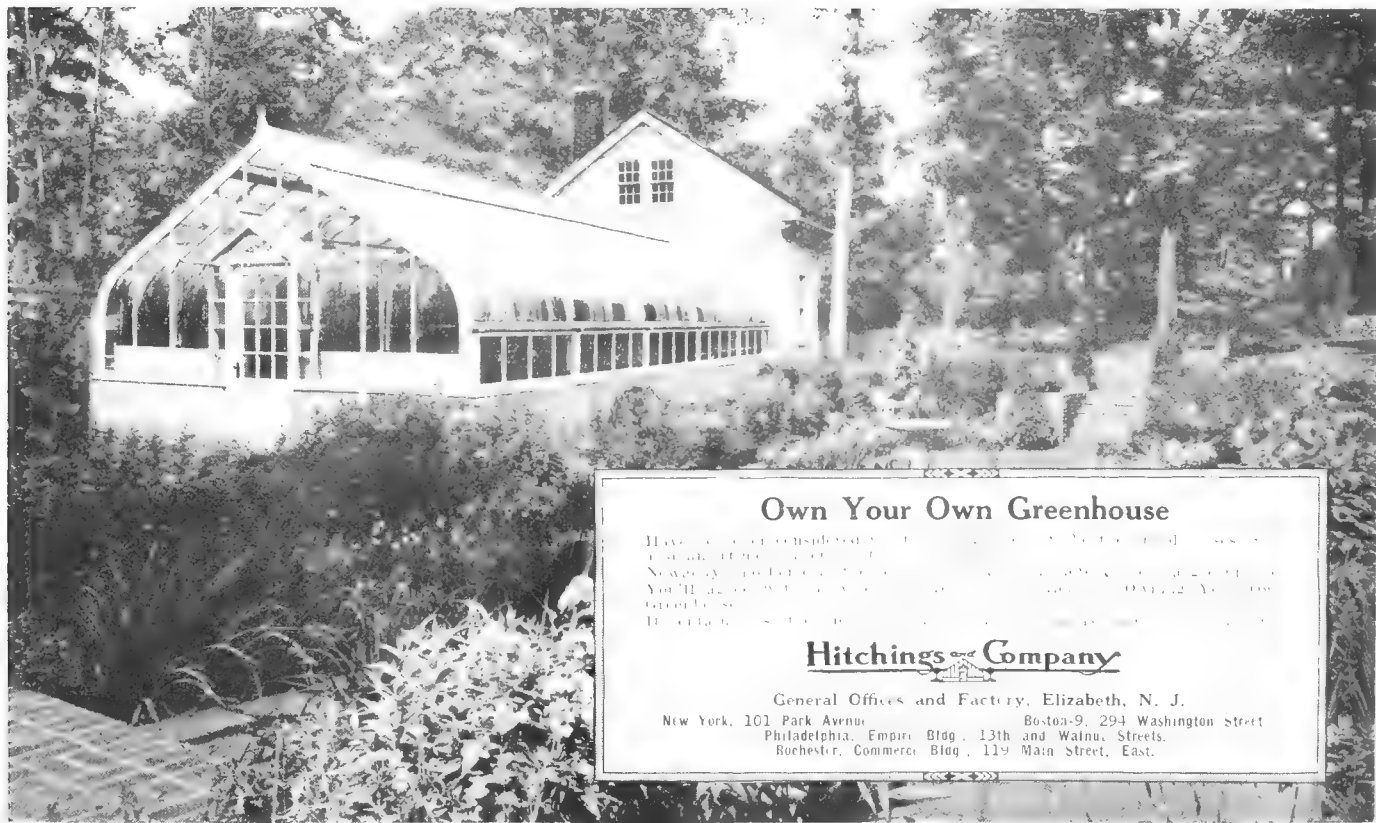
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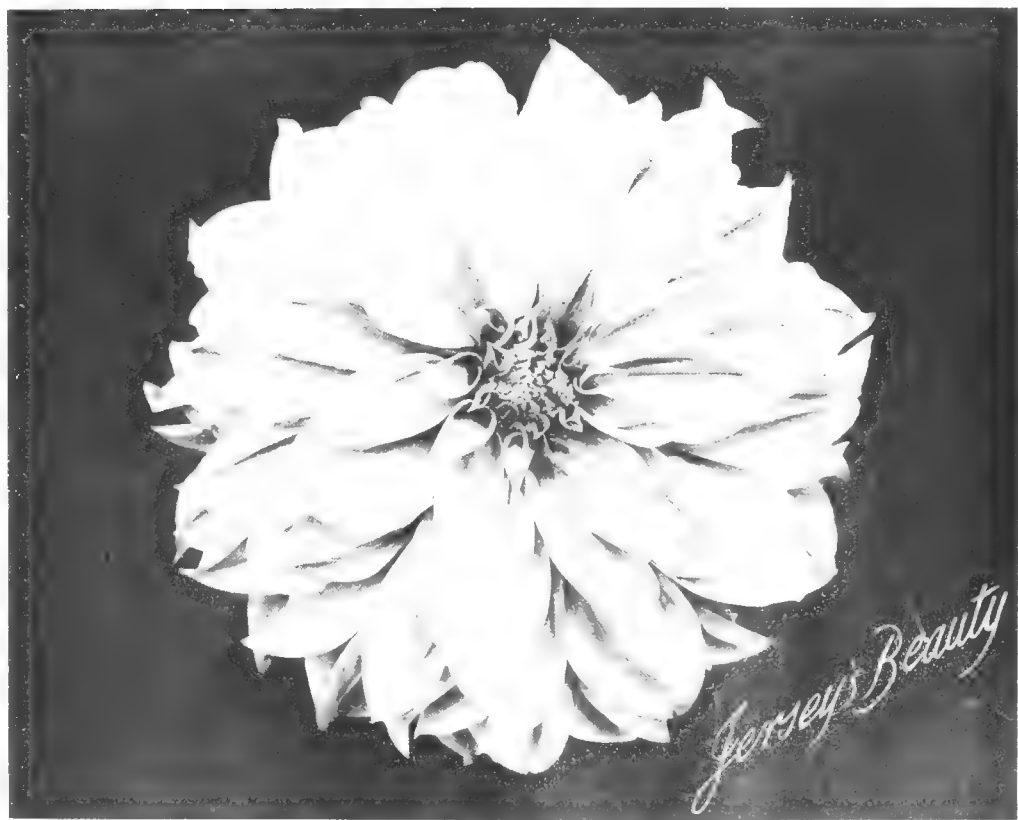
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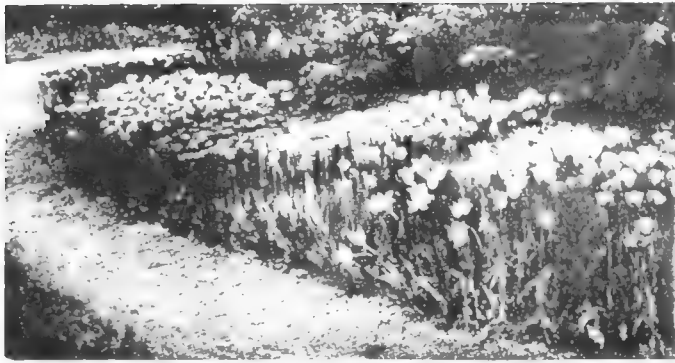
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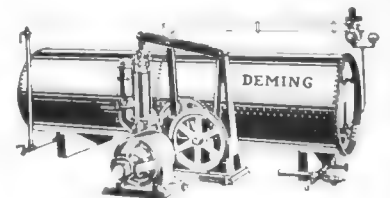
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

SEPTEMBER, 1923

No. 9

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THE two predominant flowers in our gardens during August and September are Gladioli and Dahlias. As to which of these is the more popular flower there will be a difference of opinion. Taking the country as a whole, I should say that Gladioli were much in the lead, as they thrive in many sections where Dahlias are a failure. In New England there are a great and steadily growing number of enthusiasts of each, but Gladioli appear to be forging ahead faster than Dahlias. It is easily possible by making several plantings to have Gladioli in flower from mid-July until frost, and by using more of the smaller sized bulbs, the season can be greatly extended even when only one planting is made. Amateurs are in the main very eager to get large sized bulbs for planting, which, as a matter of fact, are not the best to use. For the production of spikes of exhibition quality I much prefer those of medium size. There are certain advantages which Gladioli possess over Dahlias. They may be planted from the time the ground is free from frost and workable until the middle of July, while for first class flowers for cutting, lines in the vegetable garden are to be recommended. They are a very accommodating flower and in small clumps work in very well even in the more pretentious formal gardens, provided the colors are carefully selected; they are often seen dotted in shrubberies but there they look rather unhappy and out of place. Both the *Primulinus* and *Gandavensis* types have their adherents; in the garden the latter make the holder showing, but for cutting and artistic arrangements the *Primulinus* varieties are infinitely superior, their colors also are charming, the buff, salmon-orange, apricot and other shades being especially desirable.

* * *

The advent of *G. Primulinus* gave a tremendous fillip to Gladiolus culture. In this connection it is interesting to remember that this species is found growing in profusion near the great Zambesi falls in Central Africa and is constantly drenched by spray in its native habitat. According to E. H. Wilson it is never dry and is a perpetual bloomer. In Florida it has developed somewhat similar traits; in that balmy state it can, of course, stay out all Winter and, in spite of long periods of drought, it is more or less a perpetual bloomer. I am referring now to the species itself, but the hybrids are proving almost equally persistent. The commercial florists object to the *Primulinus* varieties as they do not ship as well as

the older and larger type, but if properly packed they travel perfectly well. They can also be arranged so much more gracefully than the *Gandavensis* varieties. As cut flowers Gladioli are immeasurably superior to Dahlias (which are not good keepers, if cut with even a moderate length of stem). They should be cut when the first flower is open and the cut should be a slanting one. Few flowers will open all blooms on their spikes as do Gladioli, and with Asters they are easily our most valuable outdoor flowers for cutting.

* * *

We are getting each year a great number—far too many in fact—of new Gladioli. There is an evident tendency to strive after size, but all hybridizers are not obsessed with this craze. There are differences of opinion as to whether the ideal spike is one carrying all of its flowers on one side of the spike, or in a corkscrew like formation round the spike. The latter will not ship well, but they certainly arrange better in a vase or basket. The branching habit has been greatly developed in late years, and in the not distant future by the use of other species of Gladioli, I look to see the advent of a race with flowers of but moderate size on spikes which are much more branched, and with the addition of greater fragrance. The amateur who takes up Gladioli culture as a hobby is always sure of a good increase in the number of bulbs, especially where all of the little bulblets are saved. They winter very easily in any cellar which will keep potatoes. In the case of bulblets I have always found that they keep much better if some soil is mixed with them and they are carried over in paper bags.

* * *

For really effective arrangements, we cannot beat the singles and smaller sized cactus Dahlias, most of which are also profuse bloomers and hold their flowers where they can be seen. What we need today is a type which is of rather dwarf habit and throws its flowers well above the foliage, with small or medium sized flowers. Such a race would make fine garden plants. At a recent show in Manchester, Mass., a plant was exhibited in a pot of just such a type as I have in mind. It was a recent importation of Scotch origin and its dwarf habit and floriferousness are the characteristics which our present day specialists are entirely losing sight of. There will, no doubt, continue to be a place for big Dahlia flowers just as there is still a demand for large Chrysanthemums, but the

furor for the latter has passed just as that for mammoth Dahlias will peter out.

* * *

The fact that Dahlias are being more and more attacked by borers is this season discouraging a good many New England growers. That potential pest, the European corn borer, has taken a special liking to this plant. Gladioli, while not entirely immune from its attacks, have suffered very little by comparison. Dahlia tubers also do not winter as easily as Gladioli and take up considerably more room. They suffer badly from heavy winds and rains, and a very little frost finishes them, which often comes when they are at their best. In spite of these apparent drawbacks there is an increasing army of Dahlia enthusiasts in the East and at this season a drive through any part of New England will show that there is a big army of Dahlia lovers. It is good to see that the old show, fancy, pompon, and single varieties have many admirers. It is also comforting to note that all growers are not striving after ten-inch blooms.

* * *

Anyone riding through the country at this season will note the increasing use of roadside stands for the sales of produce from farms and gardens. It is one way whereby producers can place their goods in the hands of the ultimate consumers. While fruits and vegetables fill the bulk of these stands, an increasing quantity of cut flowers are sold in this way. The development of these roadside stands has caused a very greatly increased sale of flowers by those of moderate means and is doing not a little to increase the love of flowers amongst the masses.

* * *

In September there is a great scarcity of desirable hardy flowering shrubs. Berried subjects, on the other hand, are numerous and well varied. Probably the most widely grown amongst flowering shrubs and the one most heavily overplanted is *Hydrangea paniculata grandiflora*. It would almost seem as if everyone with a front lawn felt the necessity of planting one or more of these easily grown, hardy and very floriferous plants to the exclusion of other equally attractive shrubs.

H. paniculata, the type, is much more pleasing and graceful than *grandiflora*, but it is for some reason little planted. *H. paniculata præcox* has particularly handsome foliage. Of the several forms of *H. arborescens*, one named *urticifolia* is a late bloomer and was just opening on September 1. *Quercifolia* has large and very striking oak-like foliage. *H. radiata*, native of the Carolinas, is not unlike *H. cinerea* in habit but the large leaves are leathery and the cymes always come with sterile flowers. A strikingly pretty and, withal, graceful Japanese shrub is *Clerodendron trichotomum*, which has proved quite hardy in the Arnold Arboretum and is at its best during September. This shrub attains a height of ten feet; its flowers are white with a reddish brown calyx, carried on forking, slender, reddish peduncles. Even when killed to the ground, the *Clerodendron* will sprout up again and flower freely as in the case of *Buddleia*. The last-named shrub makes a great show in August and September. *B. variabilis magnifica* is much the best of the several hardy varieties and is equally good in the shrubbery and perennial border; plants always carry much finer racemes when cut down to the ground each Spring. Still another September flowering shrub, a member of the *Verbenaceæ* family, is *Vitex negundo incisa*, which stands all ordinary Winters in Massachusetts and thrives well in a rather dry and sunny exposure. While the individual lilac or

lavender colored flowers are quite small, produced as they are in loose terminal panicles five to eight inches long, they are effective. Even when not in flower this shrub is attractive on account of its foliage.

* * *

In a previous note I referred to the flowering of *Lilium giganteum* in Boston. A friend in Newport, R. I., advises me that a very fine spike, carrying a dozen flowers, was a striking feature in the attractive garden of Mrs. T. J. Emery, where Andrew J. Dorward is superintendent. I have also been told that a fine spike was produced last year in a garden in Manchester, Mass. A correspondent writes of how splendidly it used to flower with him in North Wales. At the gardens of the Royal Horticultural Society of England at Wisley there are some splendid colonies of this most noble of all lilies, which carry numerous stalks of flowers each season.

* * *

A charming pink flowering plant now in full beauty is *Chironia floribunda*, a member of the natural order *Gentianeæ*. I saw a group of splendidly flowered plants in seven-inch pots at a recent show in Manchester, Mass., which appeared to interest the many society ladies present. This is by no means a new plant, having been introduced from South Africa as long ago as 1843. The *Chironias*, of which there are several species, are small, soft-wooded perennial herbs or shrubs and all are native of South Africa. They can be readily propagated from cuttings in gentle heat in Spring. They need perfect drainage and thrive well in a mixture of fibrous peat and loam with plenty of sand added. The plants referred to were rooted in the Spring of the preceding year. The small flowers produced on solitary peduncles are very numerous carried on well-rounded, shapely plants, which do not rise over a foot above the tops of the pots. This is one of the most charming Summer flowering pot plants we have. It needs cool greenhouse treatment.

* * *

Not all of us can grow Orchids, more especially tropical varieties. Some amateurs, however, are able to handle our native varieties quite successfully. Even though we cannot grow them we have the privilege of admiring them at our exhibitions, and in this connection it is interesting to know that the American Orchid Society has issued preliminary schedules for a great special show of these plants to be held in Horticultural Hall, Boston, May 8-11, 1924.

There are sixty-seven classes for plants, of which no less than twenty-three are for groups, and a supplementary schedule to be issued early in January will contain a number of cut flower classes. Five classes are allotted to native Orchids, and specialists in these latter plants have been offered greenhouse facilities for the gentle forcing of their plants. Gold, silver, and other medals, as well as silver cups are offered in dozens, mainly by the American Orchid Society, but also by the Massachusetts Horticultural Society, the Society of American Florists, the National Association of Gardeners, and a number of amateur enthusiasts. The exhibition will be the most notable of its kind ever held in America. It is planned to have all admissions free. There will be illustrated and practical lectures each day. A number of growers have for some time been making preparations for this great show, which will set a new milestone in American orchid exhibitions. All of the exhibition halls of the Massachusetts Horticultural Society will be needed to accommodate the displays and already several European specialists have announced their intention of being present.

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

THE month covered by these notes (late September and early October) is as a rule here in the East the most bracing and delightful period of the whole year. The days are bright and warm, followed by cool evenings and nights, which are most enjoyable after the heat of the previous months. Unfortunately, in the locality in which I write these notes, we nearly always have a frost in September that kills and mars the beauty of many of our garden plants. Quite often we afterwards have a long spell of fine mild weather in which no frost occurs. If we had any means of staving the frost off it would help us greatly in our Fall display. Our native hardy herbaceous plants are very seldom affected by these early frosts, but it is generally the more tender annuals that we use for filling in the gaps in the borders, made by the early flowering perennials, that are cut down and blackened. However, in our profession we are contending many times with the elements of Nature, which are beyond our control, except in very limited areas.

It is a great pity that many of the so-called hardy chrysanthemums are not to be relied on without some means of protection in this section. While attending the gardeners' convention two years ago in New York, I paid a visit to my friend, James Stuart at Mamaroneck. He had a display in the middle of October of chrysanthemums in Mrs. Constable's garden that was worth going a long way to see. There was a fine range of color among them which blended well together. Our brethren in the vicinity of New York are fortunate in having these plants for such a long Fall display.

This month the harvesting of some of the crops will be in order, and preparations should now be completed to accommodate them. As soon as the potato vines die down, if the weather is at all favorable, they may be lifted. A sharp lookout needs to be made to eliminate any tubers that show the least sign of disease. They are better if dry when removed indoors, and if time permits they should be gone over a second time to take out any which have a tendency to decay. Carrots and beets may also be stored in the root cellar in clean sand.

Be sure that the onions are thoroughly dried before placing them in their winter quarters. It is necessary to spread them out thinly on a dry floor and turn them over several times to make sure that they are well ripened. The larger the onion, the poorer they keep, so we have learned from experience. It is, therefore, better to reserve the smaller ones for later use.

This month cauliflower will be heading up and the leaves are better if tied over the heads when they form. They keep cleaner and whiter for a longer period.

During this month the celery plants probably grow more rapidly than at any time since they were planted. The important operation of "earthing up" will have to be attended to at intervals of about ten days, a little at a time and often is more advisable than at long intervals. Tie up the leaves of the plants and make sure that the soil does not come in contact with the young and tender centres. Be sure that it gets abundance of water at the roots before "earthing up." Continue to use rust preventatives at this season as this is the worst time of the year for rust.

Those who grow Globe artichokes should give them some attention at this season. Flower stems need to be cut down to the ground and the exhausted soil removed

from the roots and covered by about six inches of good farmyard manure. Then cover the same with sifted coal ashes. Some protection to the roots will be necessary later.

Give the late spinach every attention as regards hoeing and thinning out the plants. Brussel sprouts should have the leaves removed to allow light and air to circulate through them which helps to make them firm.

Lettuce should be sown in frames for succession. We find it best to drop a few lettuce seed where the plant is to grow and later thin out to a single plant.

If one has plenty of space available and can maintain a temperature around 50 deg. a sowing of beans may be made indoors. I have seen excellent crops grown in eight-inch pots on a shelf in a warm greenhouse.

Collect horse manure for mushroom growing and turn it once a day to make sure that it does not get too dry. A little, good loam may be added to the mass to help it to retain moisture. When the bed is made up, allow the temperature to fall to 80 deg. before the spawn is put in.

All apples and pears that are ready for harvesting should be picked before they attain their full ripeness.

Continue to keep the flower borders and beds clear of weeds. Spread out any plants in the borders that are in flower to cover any gap that may have been made by early frost, or by plants that have passed out of flower. Make preparations for any changes in the herbaceous borders after the last of the flowers are cut down by frost. This should be done as early in the Fall as possible, so that any bulbs that are to be planted may be put in place as soon as they arrive.

Oriental poppies may be moved in September, and any of the early Spring flowering herbaceous plants.

Dicentra spectabilis, now that it can no longer be imported, can be easily divided and increased at this season. Small pieces of root will grow into nice plants if well taken care of. It was once largely used during the Winter for forcing. *Dicentra spectabilis* is one of the most beautiful of our early Summer flowering plants and lasts a long time in flower. There is a pure white form of it now very rarely seen.

Japanese Anemones will be in all their glory, unless injured by early frosts. It is a pity that in our section this quite often happens, as they are undoubtedly among the choicest of our Fall flowers. They do very well grown in tubs, and thus grown are more easily protected. There are quite a few hybrid forms of these plants, some of them very beautiful.

Another beautiful Fall flowering plant is *Cimicifuga racemosa*; the variety *simplex* is also quite common. They are among the best of our Fall flowering plants, and are perfectly hardy, doing well in shady positions. A fungus blight disease, quite often attacks them, which is very unfortunate. This Fall, however, we have seen none affected. The same also was true of Hollyhocks. Never have we seen finer foliage on these plants.

Continue to take good care of the hybrid tea roses, which remain flowering until quite late in the year if well watered, sprayed for blight, and fed.

Transplant all mid-Summer sown herbaceous plants into good soil and give them every encouragement, if intended for the borders next Summer.

Dahlias, where early frosts have not injured them, will be in all their glory. They like plenty of water during their flowering period. The rage lately seems to be after large flowers, which, to my mind, are too coarse for ef-

fective decorative work. Good straight colored singles are much better. The double flowered kinds are not nearly as free flowering as they were nearly forty years ago, when, as a boy, I first became acquainted with them. When it comes to names, well, to say the least, they are bewildering.

If the weather becomes dry, see that any lawns which have been seeded down recently are well watered; the young grass will not yet be well rooted and will suffer if neglected.

If there are any evergreens to be planted, let it be done without delay so that they may become established before Winter.

IN THE GREENHOUSE

This month is one of the hardest for the greenhouse man. Everything has to be brought into its Winter quarters, and on nearly every place plants have to be somewhat over-crowded until the chrysanthemums are out of the way. Cold frames are very useful at this season, as many of the more dwarf growing plants may be kept in them until well into December with a little protection. Care, however, must be exercised that they are well aired on all bright warm days to prevent damage from dampness.

Azaleas should be sorted out into batches, the earlier flowering varieties may be immediately placed in a cool, light, airy greenhouse. Later on a few that may be desired early in the year can be forced in a little more heat. A good cool pit is the best place for storing the main batch, watering them carefully. Any young growths that may appear around the flower buds must be picked off. Occasional waterings with soft coal soot water will keep the foliage in good color and will not stimulate young growths. A collection of the lovely Kurume azaleas ought to be secured. The different shades of color are most charming and are sure to be appreciated by anyone with refined taste.

Acacias, Heaths and all greenhouse hardwood plants, known as New Holland plants, may be kept in any light structure from which frost is kept. They resent any attempt at forcing in a high temperature. Stevia and Buddleia asiatica may be also treated like hardwood plants and brought into a slightly higher temperature as required.

Chrysanthemums need plenty of attention as regards feeding, as they swell their flower buds. The old standard plant food "Clay's Fertilizer" is hard to beat, and it is also safe. The plants seem to take it up as they require it. The bush plants may be staked out as soon as they set their flower buds. Put in cuttings of the Paris daisy (*Chrysanthemum frutescens*) which will make useful plants by Spring. As cut flowers they blend well with any other Spring flowers.

Give the Bouvardias a good position in an intermediate temperature. They may be fed a little if at all pot bound.

Commence watering and feeding Nerines as soon as they push up their flowers. It is not advisable to re-pot these plants as long as there is plenty of room in the pot to hold water. They flower much better when the pot is well filled with bulbs. Every greenhouse should have a batch of them, as they bloom just as other flowers are cut down with frost outdoors. Arranged with ferns their bright colors appear pretty and cheerful. *Primula sinensis*, *obconica*, *stellata*, and the early batch of *malacoides* will soon be ready for a shift into their flowering pots. They grow well in a good rich, sandy loam. *Primula kewensis* is another primrose that is useful in the Spring, both as a plant and for cut flower purposes.

A frost-proof frame of English primroses gives quantities of flowers very early in the Spring, and continues in flower quite a long while.

Keep young fuchsia plants which were rooted about August first, potted right along; never allow them to get pot bound. Give them a rich open soil. Pinch the centres about every six joints, always taking the strongest break for a leader. The side breaks also need judicious pinchings to form nice specimens.

We have had very poor success in forcing *Iris tingitana*, since the foreign supply was cut off by our over-zealous friends in Washington. A friend in California writes to me that the whole trouble seems to be in the ripening. He says outwardly he can grow bigger and better looking bulbs than the imported ones of bygone days, but he obtains very few flowers. He, however, is not discouraged and hopes in the near future to solve the problem.

How much we owe to the pioneers in horticulture in the years behind us! It is cheering, however, to realize that we have men today in our land who, in the face of baffling problems in our life work, are keeping at it. Many of them are far from friends of their youth and living an obscure life in out of the way regions, that some day others may enjoy the fruit of their labors. How much of our honors, and pleasures belong by right to the other fellow, we should do well to think about sometimes. But we are getting away from our subject.

Iris tingitana must be grown cool and in a light position to thrive well, even if we are unsuccessful in obtaining flowering bulbs.

To those who have a house suitable for growing sweet peas, the present is a good time to start them. Three seeds to a three-and-a-half-inch pot are plenty, and if one strong plant develops from them, will be sufficient in each pot, when planting out time arrives. Keep them as cool as possible until they are transferred to their growing and flowering quarters, after which they may be kept in a night temperature of 50 deg.

Secure bulbs of such lilies as *L. candidum*, *L. Formosum*, and *L. giganteum*, also *L. Harrisii*. The last named may be forced quite early. We have noticed lately that *L. Harrisii*, which some years ago was badly affected by disease, has been much less subject to it. It would be interesting to know the reason why. I have long held the opinion that, if all the lilies mentioned above were grown from seed, they would be much more vigorous. With the exception of *L. candidum*, the others are all forms of *L. longiflorum*, and probably would not come true to form. Giganteums are better if placed under a bench when potted, until they are drawn up about four to five inches, as they are likely to flower too short in the stem. They like also to be kept in a steady temperature around 60 deg. until they open their first flower, when they may be kept in cool quarters for a long period. On the whole, for a private greenhouse, we like *Formosum* the best. It comes along in a lower temperature with us, much better than either *L. Harrisii* or *giganteum*, and generally has more flowers to the stem.

In the tropical house it will be better, with a few exceptions, not to excite the plants by stimulation, to make any further growth this season. Air freely on all favorable days and avoid extremely high temperature at night. The aim should be for a firm growth, so that, if they are used for any decorative work they will not suffer much.

Crotons, Dracenas, and any other plants which require light and sunshine to bring out their beautiful markings, may now be given a position where no shading is used. If they have been grown all Summer as they should, that is, just enough shade to keep the foliage from burning, it will do them no harm.

Roses will need all the care from now on that we are capable of giving them. Through the Fall, and until the days begin to lengthen, heavy mulching of cow

(Continued on page 224)

Crassulaceae, Their Propagation and Care for the Window Garden

DR. E. BADE

ALTHOUGH the thick leaved Crassulaceae are the children of the sun, Nature nevertheless exposes them to the extreme conditions prevalent in deserts, steppes, mountain regions, and the alpine heights. For this reason the greater part of the plants have been forced to assume curious shapes. The most common formation found is that of the rosette where all the leaves are succulent and secrete slime, and a gelatinous rubberlike mass which protects the plants from herbivorous animals, and since much salt is also found in them the evaporation of the water, which was taken in during the rainy season, is prevented.



Notching the veins of Bryophyllum calycinum for propagation

A lessening of the leaf surface, which also tends to prevent rapid evaporation, is attained by these thick leaves.

To arrive at the conclusion that thick leaved plants should be kept as dry as possible is completely false. They should be regularly watered during their period of growth. In Winter, their season of rest, they are only watered when it becomes absolutely necessary, and then they are given only enough to keep the leaves from with-



Some time later small roots and leaves will make their appearance. During these months they do not require much light and heat, and may, for convenience, be placed near a cellar window where the frost can not reach them.

In Spring, when the period of growth begins they must be gradually accustomed to the sunlight. They should never be taken from their Winter quarters and

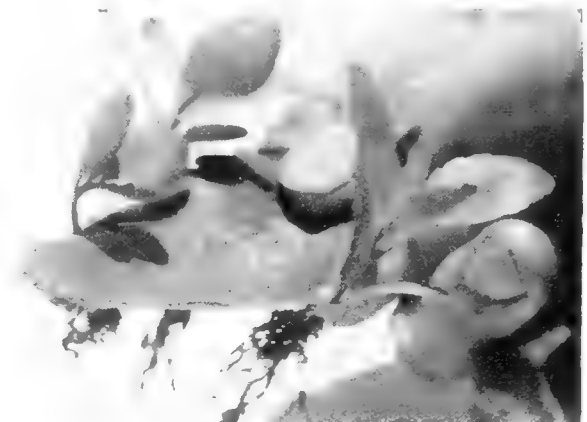
placed into the direct rays of the sun, for then the leaves would only be burned.

These plants are exceptionally unassuming and require but little personal attention. For this reason they are especially fitted for the window garden, the peculiar form alone making them very attractive. The young plants should be transplanted every Spring while the older plants need only be repotted every third or fourth year. Since they have very few roots, relatively small flower



Covering the flower pot with a glass plate to keep the temperature and moisture as uniform as possible

pots should be used. Before placing the plant into the receptacle, the vent should receive a good foundation of broken potsherds. This will aid in removing the surplus water. The plants are satisfied with any sandy soil, although they do not bloom in it. If they are to produce flowers, they should be placed into a rich limy soil mixed with a little clay and sand.



After a few weeks the young plants can be transplanted

Since the majority of Crassulaceae multiply themselves more easily with runners than they do through seeds we need not expect any other method. An interesting and unique way of propagation is shown by a member of this family, namely Bryophyllum calycinum which produces small plants on its leaves. After one of the leaves of this plant has been broken off near the petiole, and the place of parting has been well dried, the veins must be notched.

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Notes From an Old Country Garden

ARTHUR T. JOHNSON, F. R. H. S.

ALTHOUGH the term "wild garden" is a somewhat contradictory one it serves to indicate a phase of horticulture which is becoming increasingly popular over here. It is the "outward and visible sign" of that inward desire to get away from the old formal style of gardening which once engrossed so many of us. The pendulum has swung in the opposite direction and we are borrowing, rather than rigidly excluding, some of that delightful freedom and breadth of treatment which is so characteristic of Nature's own woodland, hill-slope or river-side.

Whether the same influences are responsible for the advance made in this direction by many American gardeners I do not know. But I do know that they have often grasped the advantages of existing natural features in the making of gardens, and preserved these in all their pristine loveliness. A suitable setting must of course always be considered essential to the satisfactory creation of a wild garden, and that being so a good many of us may be debarred from indulging our fancies in such departures. But since the term wild is such an elastic one, embracing the grouping of not only native subjects but suitable exotics, it affords a very wide and varied field of work.

At the time of writing (August) a considerable part of our own wild garden is yielding some glorious masses of color, for the heathers are in bloom and it is to these that we look for the most gorgeous display at a season when the rest of the garden is comparatively dull. The majority of these heaths are grouped on a sharp, rather dry slope of light loam which is quite free from lime, and, though they have never been given any peat, they flourish abundantly.

Those heathers in flower at this season are mostly forms of our native species. The first of these to open is usually the bell heather (*Erica cinerea*) of which *E. c. rosea* and the dwarfer varieties, *E. c. atropurpurea* and *coccinea*, are probably the most attractive, but there is a pure white one with a very dark green foliage which is singularly beautiful. Then comes *E. (Calluna) vulgaris*, the true heather, or ling, of Scotland which, when bearing its fascinating white flowers, is the "White Heather"—emblem of "Good Luck" wherever the English tongue is spoken. The variety *serlei* is, I think, the finest of these whites, making a splendid bush some 3 ft. high, but there are many others, and among the colored ones there is a peculiar fascination about the very free and robust *Calluna vulgaris flore plena*, a perfectly double variety in a soft lavender tint.

Then we have the great Cornish heath (*E. vagans*) which affords a number of superb and distinct kinds ranging from white and cream through blush and rose to crimson, and the very charming Dorset heath (*E. ciliaris*). This last is the only one of our native heathers which may be considered a trifle tender, but it is one of the most beautiful of all, the very large bells of rosy purple, or white in the variety *alba*, being produced in long spikes which stand above the semi-prostrate masses of soft emerald green, rather pubescent, foliage. Another very attractive species is the cross-leaved heath (*E. tetralix*) which includes many varieties, the large, almost globular, bells being set in whorls at the ends of the growths.

In addition to the above there are, of course, a host of others and what makes most of these *Ericas* appeal so strongly to many of us is not only their peculiar beauty

but their ability to put up with dry soils and the fact that, once established, they never need any attention but go on for many seasons, increasing in beauty year by year. Moreover, by growing in conjunction with the above a selection of Mediterranean and other southern and alpine species we are enabled to enjoy masses of heather in full bloom at all times from January to December. And some of these Winter bloomers, such as *carnea* (herbacea) and *darleyensis* (hybrida) which flower from the end of the year to Spring, are as hardy as an oak.

America is well represented in our heath garden by the *Bryanthus (Menziesia) empetrifomis* of the Rockies, which is a gem of the first water, giving us its delightful sprays of rose-pink bells in Spring and again in the later Summer. Another tiny shrub, *B. erectus*, said to be a hybrid between *Rhodothamnus* and *Kalmia*, but bearing a much closer resemblance to *B. empetrifomis* than to either, is a charming little plant with a yew-like foliage and pink, waxen blossoms which might be taken to be those of some diminutive azalea. *Menziesia Breweri*, from cool places in the heights of the California Sierras, is another of this fascinating race that the New World has given us, and then there are among other American ericaceous things of dwarf stature which make themselves at home with our heaths, the semi-prostrate *Vaccinium ovatum* of the Pacific Coast, *V. buxifolia* for carpeting the more shady spots, *Arctostaphylos uva-ursi* and *californica* and others of that clan, and the very choice and dainty *Cassiope (Andromeda) tetragona* which flourishes so abundantly throughout the more northerly ranges of the Rocky Mountains.

The North American Sweet Pepper Bush (*Clethra alnifolia*) also claims attention, since it is now opening its fragrant sprays of white flowers, and near this we have another species, *C. acuminata*, native I believe of the Alleghanies, with rather narrower leaves and creamy, sweet-scented corymbs of bloom. *C. tomentosa* is a good and distinct form of the former with white, woolly undersides to its leaves. These *clethras* also belong to the ericaceous group and they are happiest in cool, peaty land such as that in which *Rhododendrons* thrive. Suitable companions for the pepper bushes are the pretty *Pieris floribunda* and *Zenobia speciosa*, a very beautiful species from the Southern States of America, and quite hardy here, bearing elegant sprays of white, globular flowers like lily-of-the-valley.

In the cooler, more shady, parts of our wild garden the willow gentians (*G. asclepiadea*) make a most striking effect. These consist of a variety of forms, the usual type sending up gracefully arched stems set with twin pairs of leaves at the axils of which are produced the large, bell-shaped flowers varying in shade from an ultramarine blue to a clear, luminous azure. In some instances the willow gentian will attain a height of nearly 4 feet and there is a very charming pure white variety which always looks its best in the half shade of woods associated with hardy ferns and other suitable subjects of the kind.

Though it needs full exposure *G. septemfida*, the crested-gentian of the Caucasus, also does admirably in our loamy soil intermixed with a little leaf-mould. This is, indeed, one of the easiest of its fascinating race and it is particularly valuable inasmuch as it creates fine drifts of rich blue during August and September when so

(Continued on page 224)

Lifting and Wintering Tender Bulbs and Tubers

FLORUM AMATOR

SUMMER has passed and Autumn is here. Before many weeks have gone frost will begin to crust the surface soil in our gardens in the night, and force us to dig and store our tender flowering bulbs, tubers and roots, if we desire to save them for replanting next Spring. This is a work which permits no postponement, for if frost once penetrates the soil deeply enough to freeze hard our Summer flowering bulbs and tubers, our stock of these will be lost.

The three kinds of bulbs, tubers and roots most planted by flower lovers are the *Gladiolus*, *Dahlia* and *Canna*. The first and hardiest of these is not a true bulb, but corm; the second and more tender is a tuber; and the third equally, at least, and perhaps more tender than the second, is a rhizome or root-stock. Let us consider the Autumn digging and Winter storage of these in reverse order.

As soon as the first light frosts of Autumn have nipped the leaves of our *Cannas*, we should allow the tops to dry for a few days, unless there is immediate danger of a freeze, which will penetrate to the full depth of the *Canna* roots, and then dig the roots up with a spading fork and let them dry with some earth on them for a day in the open air. They should not be exposed outdoors for even a single night, after they are dug, to the danger of even a light frost. *Cannas* should never be left in the ground until heavy frosts penetrate the soil deep enough to freeze the roots, for frost-bitten *Canna* roots will not winter over satisfactorily no matter how well they are cared for. After a day's drying in the open air, remove the tops close down to the roots with a sharp knife, and then place the roots on shelves in a cellar in which Irish potatoes will keep well. This is a rule given by the "authorities" generally, as regards the place for wintering *Canna* roots, but we are inclined to think that *Canna* roots winter best in a room or cellar where the temperature is considerably higher, and the atmosphere drier than is best for keeping Irish potatoes. Perhaps we may safely keep the heavier roots in either degree of temperature and humidity but the weaker roots in the lower and greater humidity where they will not dry up. It is very important that *Canna* roots in storage should not get too warm or too moist before cold weather sets in. In case the roots, when dug and dried do not retain much earth, a covering of light soil placed over them will help to keep them. If our *Canna* plants are fully matured at digging time, and the roots well cured, generally they are wintered over without much loss, but roots of small immature feeble plants are difficult to keep. The earlier *Canna* roots are started into growth in Spring the less the loss of roots. Commercial growers of bedding plants put their *Canna* roots into pots or flats and start them into growth under glass in mid-February or early March.

Dahlia tubers should not be left in the ground until heavy frosts penetrate the soil deep enough to frost the tubers. Frosted *Dahlia* tubers will not winter over even under the best conditions. As soon as frost has killed the foliage, cut off with a fine-toothed hand-saw squarely, root obliquely, the stalks at the surface of the ground. The advantage of a saw over a pruning knife is that in Spring when we are dividing our *Dahlia* clumps, we are not as liable to wound our

hands with the square end of the stalk as left by the saw as we are by the sharp, slanting, dry end left by the pruning knife. Dig the tubers very carefully with a spading fork so as not to break them from the stem, for tubers separated from the stem are worthless. Extra care in digging must be taken with such varieties as have tubers with long, weak necks. We should avoid digging when the ground is wet. Remove after digging as much soil as possible by rapping on the end of the stalks with a mallet or light hammer, the clump of tubers being held up a little at the same time from the ground. After this allow the tubers to dry, but only for a few hours. Next pack the clumps of tubers, the stalk end down, so that any juice or water in the stalks may run out, in barrels or boxes very thickly lined with newspapers and then cover heavily with newspapers, and immediately put the head into the barrel or cover on box and nail up tightly so that mice cannot possibly get in. Place in a cellar or room free from frost and where the temperature is not over forty-five to fifty degrees. Some careful *Dahlia* growers, after labeling each clump, which should be done in any case, wrap each separately in newspaper before placing in box or barrel. Where the air in the place where the *Dahlias* must be kept is very dry, they place a thick covering of leaves or moss over the top of the barrel or box of clumps before nailing up.

If *Gladiolus* corms were set deep as they should be at planting time, they can safely be left in the ground later than *Dahlia* tubers or *Canna* roots, but, of course, they must not be left so late that the frost penetrates the soil deep enough to freeze them. We have, however, known *Gladiolus* occasionally under favorable conditions to winter over in the garden, but have never seen a *Dahlia* or *Canna* survive the Winter in the garden.

In digging *Gladiolus* we raise the corms by pushing a spading fork under them, lift them out by their tops and lay them on the ground to dry. They may be ripened fully in the open garden if the weather is favorable. After they are dry and ripened, we cut off the tops close to the corms, and pull off from the bottom of the new corms the old corms and roots. If the weather is unfavorable for drying and cleaning in the open, the corms immediately on digging may be brought under cover and dried, and topped and cleaned there. The corms should never be left out in the garden and exposed to a frost after they are dug. All kinds of bulbs, tubers and roots will endure more frost when in the ground than when out. After the corms are cleaned, we place them in rather thin layers in crates or in peach baskets fairly full and store them in a dry place where the temperature is from forty to fifty or even a few degrees higher if necessary. Our experience has been that *Gladiolus* corms placed in a rather dry atmosphere and fairly high temperature keep in better condition and respond more quickly when planted the following season than corms kept in a rather low temperature and somewhat humid atmosphere.

Montbretias, *Watsonias*, *Zephyranthes candida* and *rosea*, *Sprekelia formosissima*, and *Bessera* should be lifted at the same time and wintered in the same way.

as *Gladiolus*, except that *Montbretias* should be stored in dry sand.

The tubers of *Richardia albo-maculata* and of *Commelina coelestis* are dug at the same time and wintered by the same method as *Dahlias*, but *Commelina* should be planted out in Spring without being allowed to start into growth.

Tigridias after the first hard frost should be lifted with their tops on, tied into bunches and hung up in a dry cellar or room in such a way that the mice, which are very fond of them, cannot get at them. If hung in a moist cellar, they will rot. The tops can be cut off and the bulbs be put in mice-proof, but well ventilated boxes.

Calochortus, when frost comes, should be dug and put in dry moss or sand and kept dry and warm during the Winter. They can also be wintered in the ground if thoroughly protected from water and frost.

Tuberous-rooted *Begonias*, if growing in outdoor beds, should be lifted on the coming of frost and dried off, and then placed in dry earth or sand, and kept in a warm, dry place. Not later than the first part of the following March they should be potted and started into growth again, as after that date they deteriorate.

Tuberous, after frost, should be taken up and their tops cut off about two inches above the bulbs and the bulbs stored in a dry room where the temperature is not below forty degrees.

Milla biflora, not long after the first hard frost, should be lifted and dried out, and put in flats about two inches deep and stored with the *Gladiolus*. When the leaves of *Ranunculus* separate from the roots by a gentle pull and the leaves of *Anemone coronaria* die down, it is time to take them up without any delay whatever. After they are cleaned up, the bulbs should be put in a shady place and turned until entirely dry. If kept dry, the tubers of the *Ranunculus* will retain their vitality for two or three years. *Ranunculus* is really a cool greenhouse plant, but is grown successfully outdoors in frames.

NOTES FROM AN OLD COUNTRY GARDEN

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many flowers have gone over. The individual blossoms on *G. septemfida* are deeply bell-shaped, often more than one inch across and each of the many nine inch stems put up by a hearty plant will frequently bear as many as 15 of these noble flowers. Though sometimes listed as a distinct species *G. lagodechiana* is only a slightly smaller, more prostrate, form of the above with blossoms of rather a paler blue.

Just after these comes the much newer *G. Farreri*, a superb species which has won its way into all good gardens not only on account of its unrivalled beauty but because it is, as gentians go, by no means a difficult subject. In the late Mr. Farrer's own words, this wonderful plant sends out "many flopping, slender shoots clad in very narrow foliage, and ending each in a single, huge, up-turned trumpet, wide-mouthed and of an indescribably fierce and luminous Cambridge blue within (with a clear white throat) which, without, long vandykes of periwinkle-purple alternate with swelling panels of nankeen outlined in violet and with a violet median line. . . . It is by far the most astoundingly beautiful of its race, reducing *G. verna* and *G. gentianella* to the dimmest acolytes." Need one say more in praise of what is one of the most entrancing plants that the sumptuous treasure gardens of Tibet have yet yielded?

The *kniphofias*, or red-hot poker plants, have always been favorites in this country, for they afford just those fiery tints which harmonize so happily with the leaf color

of Autumn, and they are among the most valuable and suitable of wild garden subjects. Fine as are the many tall species and varieties of these noble plants there are many smaller ones which, if not so well known, are rapidly coming to the front with us. This is not only because their shorter stature and less bulky growth renders them so suitable for rock-garden and border as well as for the foreground of wild garden or woodland groupings, but it is on account of the brilliance of their colors and long season of blossoming. Possessed of such excellent kinds as *K. Nelsoni*, *rufa*, *corallina*, *Macowani* and a host of others, we can now enjoy the brilliant yellows and reds, the flaming vermilion and crimson and orange tones of these stately little 2-3 foot torch lilies from June to November, for unlike many of the older kinds, the same plants will often yield successive sheaves of bloom spikes the season through.

I am tempted to mention one more family of plants which are of the utmost value in the wild garden, woodland or unconventional border and that is the genus *Verbascum*, or the mulleins, as they are familiarly known. There are so many excellent varieties of mulleins now in cultivation that one hardly dares to make comparisons. Great improvements have been made in both color and form of many varieties from the 18-inch *V. phoeniceum* in various shades of purple and buff to *V. olympicum* and *parnassum*, with their noble candelabras of large yellow flowers and handsome foliage towering to a height of eight feet or more. There are also some exceedingly lovely kinds of more moderate height in a color usually described as rosy-fawn, and then we have those coppery-apricot shades which are not less pleasing in woodland shade than the citron and primrose yellows. These eminently stately plants are, for the most part, biennials, but one is amply repaid for the trouble entailed in maintaining a stock where this is not ensured by self-sown seed.

IN THE GARDEN AND GREENHOUSE

(Continued from page 220)

manure we avoid. Experience has proved to our satisfaction that we get just as quick and a much firmer growth by weekly sprinklings of Clay's Fertilizer, bone meal, dried blood, and hen manure, during the short days. We use one of the above, each week in rotation, if possible. Hen manure we are very careful with, because it throws off ammonia quite freely and would soon damage the foliage, unless the air circulates freely. A little air on a rose house all night anyway is far better for the plants, if one has sufficient heating radiation.

In orchid growing, the aim should be to grow the plants with as little shade as possible. We have noticed that where this is done the plants flower more freely and the flowers have more substance to them. Movable shading is by far the best, and after seeing and having had experience with many different types, I have found that these plants, with the exception of the cool orchids, which require a heavier shade to keep them cool during the extreme heat of Summer, require shading—double cheesecloth is the best for this purpose. Early in the season a single thickness is sufficient, and also after the middle of September, if any unusual hot days come along. Plenty of fresh air is at all seasons in order, and during cold weather it is better for the health of the plants to use more fire heat and moisture, rather than deprive them of it.

See that pot fruit trees which are to be forced early get every chance to ripen their fruiting wood. Strawberry plants in pots for forcing next Winter must not suffer neglect in any way. Feed and water them regularly; the better the crown the more fruit will result, also better quality, which is the aim of the fruit grower.

ON THE DEVELOPMENT OF AMERICAN PRODUCTS

AZALEAS, Rhododendrons and Boxwood are being grown in different sections, but this is a slow operation at best and they are not yet available in anything like adequate commercial quantities. There is a question whether they can be produced on a profitable basis. However, we understand that a few growers are making progress in growing Indian Azaleas in different sections, some in the East and some on the Pacific Coast, and particularly the new Kurume type of Azalea, which promises to become an important plant when produced in sufficient quantity.

The inclination has generally been to substitute quick growing plants, such as Cyclamen, Begonias, Hydrangeas, pot Roses and a few other plants, which can be produced quickly and cheaply. When it comes to growing plants that take a long period of time to produce, our growers have not the inclination to work along these lines, nor have they the skilled labor needed to produce them. This is particularly true around the large industrial centers where the labor situation is acute.

The promulgation of Quarantine 37 was sudden and drastic and there is a wide difference in opinion in regard to the necessity and advisability of this action. There is a tendency to still further restrict the importation of the few plants that are now permitted. We understand that the Federal Horticultural Board is now getting expressions of opinion in regard to the advisability of an embargo on Manetti stocks. This is one of the most important of the few remaining articles that are now permitted and one of the most important articles imported by florists; an embargo on it would be a serious blow to the greenhouse Rose growing industry of the country. There are no supplies of Manetti available in this country and an embargo on this material would affect every Rose grower in the country, as grafted Roses are now considered absolutely essential. We have accommodated ourselves to the present restrictions as far as possible, but any further embargo on the few articles now permitted would be a catastrophe, until it had proved and developed that we could furnish adequate home-grown supplies.

So far as the successful home production of Lily bulbs from a commercial standpoint is concerned, there is reason to question whether they can be grown here. Forty years ago claims were made that Lily bulbs would be grown in this country and plantings were made in California, Georgia, Florida and various other places in the South, and at that time there was every incentive on account of the scarcity and high prices of bulbs, but although 40 years have elapsed, no substantial progress has been made in their cultivation.

In regard to Narcissi, while undoubtedly there may be more opportunity for growing these successfully, still attempts have been made to grow them for several years. One particular case is recalled where a number of experienced Guernsey growers located in Virginia with the idea of growing varieties of Narcissus in this country; but after several years the experiment proved a failure.

Claims have been made that Tulips are being grown successfully here, but in nothing like adequate quantities; and the blooming qualities of the bulbs still remain to be proven. While some varieties of bulbs may be grown here, it must be remembered that there is only a certain area in Holland where Tulips can be grown to produce good blooming bulbs for forcing purposes. The Hollanders found this out to their sorrow when they tried to grow Tulips in other sections of Holland, and it still remains to be proven whether the easier grown Narcissi, like the Paperwhites, can be grown and will produce satisfactory flowering bulbs for forcing. Particular climatic

conditions and soil are necessary to produce good flowering stock.

Of course, in the production of new varieties of plants, there is a great field and opportunity for our hybridizers. This is particularly true in the case of Roses. At the present time, most of the principal commercial varieties for Winter-flowering are varieties which originated in this country, and many of the most important are products of E. G. Hill. This shows what skill and enthusiasm will accomplish. Mr. Hill calls attention to several new Roses which he saw on the Pacific Coast recently. The one outstanding variety, which he saw at Portland, was Bonnie Prince; this with another new Rose called Imperial Potentate, offer two charming additions to our collection.—*Extracts from a report submitted by F. R. Pierson before convention of Society of American Florists.*

DAHLIAS FROM SEED

NOT every one is aware of the fact that dahlias may be raised in one season from seeds as readily as from tubers, and moreover the seeds have the advantage of being less expensive. Definite named varieties cannot be expected from seeds as the plants are variable, but when flowers of various forms and sizes are permitted in the garden the results are very satisfactory. It might be well to mention, however, that the best plants can be expected from selected seeds of double varieties which most seed



(Courtesy of Mo. Botanic Garden Bulletin)

Dahlias from seed started March 27, picked September 20, 1922

firms feature. Of course, some single varieties will appear, but frequently they are pretty enough to be worth saving. Dahlias raised from seed usually produce good tubers the first season, and when a particularly fine variety is secured it can be perpetuated by dividing the tubers in subsequent years. Some gardeners raising dahlias from seed and securing a great variety of good flowers are tempted to name them and place the tubers on sale. The varieties of dahlias, as well as of many other flowers, are already so very great and many of them so similar that any attempt to introduce new kinds without first registering them with the particular flower society should be discouraged.

To obtain best results the dahlias should be started in—
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On Forest Conservation and Its Relation to Plant Production

GEORGE H. WIRT

MR. CHAIRMAN, Ladies and Gentlemen: I note by the program that you have very graciously given me the honor of representing the great Governor of a great Commonwealth. I need not tell you that Mr. Pinchot is interested in your organization, because I see by the list of sustaining members that his name is in the Pennsylvania list. Anyone who has been in touch with work of your kind and any other kind of work that has to do with the conservation of natural resources knows where Mr. Pinchot stands on the proposition. He is with you not only in Pennsylvania but in the Nation, and I feel it a great honor to be able to come here to Pittsburgh to be with you people, not merely because it has been placed upon the program that I represent Mr. Pinchot, but from a personal standpoint, to be able to talk to you a few minutes about my own chosen work.

So I tell you, as representing the Commonwealth of Pennsylvania, that we welcome you who come from other states into a Commonwealth where we have been proud to say we have the garden spot of the world. But also, as one of the previous speakers has said, we have in Pennsylvania places that are equal to the Sahara Desert for barrenness. It may or may not be of interest to you to know that Pennsylvania has probably close to three million acres of waste land that at one time was cleared for farms and gardens and today is abandoned.

I find in the educational work over the State—and it is a mighty difficult proposition—that in order to create any enthusiasm in forest protection we have got to find some point of contact between the forest and the people with whom you are talking and dealing. Now where do you touch the forest and where does the forest touch you and your interests?

Well, from my knowledge I will say limited knowledge of plant life, I know that one of the most essential factors in the success of plant production is moisture, that moisture must be available either in the soil or in the atmosphere and usually it must be in both in sufficient quantities, else you are stumped, that is all there is to it, and your efforts have been in vain.

The water table, we are told, in Pennsylvania has dropped on an average of twenty-seven feet from what it was fifty years ago. Do you realize, men, what that means to the agricultural interests of this Commonwealth? Stop to think about it. Has that anything to do with explaining why we have three million acres of waste farm land in Pennsylvania?

Tie up with that fact the fact that the deforesting of this state has been accomplished practically within the last fifty years, and there isn't any question to the fact that the forests on the hillsides of Pennsylvania and the forests on the hillsides of your state, wherever you are from, are nothing more nor less than God's reservoir for the maintenance and constant supply of the general water table of the Commonwealth.

Now the matter of moisture in the atmosphere. You people know that all plants transpire moisture. They give moisture off through their leaves and foliage and stems and so on. The whole plant body to a large extent is giving off moisture. The forest gives off tremendous quantities of moisture, but when there is no forest that moisture is not taken from the soil and given back into the atmosphere to come down over your gardens and over your farms supplying your crops with moisture, but instead of that the winds that come across our denuded mountains and hilltops come with moisture taken out of them and when they strike your gardens and strike your



The members of the National Association of Gardeners assembled on the lawn of the estate of

crops, instead of giving moisture they in turn take the moisture somewhere else.

So I feel that the protection of forests and the replacing of forests on the denuded lands of this state or of any other state is of intense interest to you because of the water moisture supply which those forests will guarantee not only to the immediate work in which you are interested, but very largely to the insurance of a constant moisture supply for those who come after you.

I need not mention to you from the economic standpoint of timber supply the value of forests. It affects you not only as gardeners but as individual citizens of these United States, and if you haven't considered this proposition as to where and how you are tied up to the forests because of your demand for wood, I only ask you to read any of the bulletins which you can get upon request bearing upon the subject, and many of them are brief. Get in touch with your own state forester and see what the situation is in your own state.

Just let me give you briefly the situation in Pennsylvania. There is not enough timber cut and harvested in the State of Pennsylvania, all over this state, made up of twenty-eight million acres or more, to supply the lumber needs of Pittsburgh and its immediate surroundings, and some time ago in connection with a meeting which we had in Harrisburg of timber users and others, the proposition was worked out so that ex-Governor Sproul might make an effective appeal to the timber users to get their support for the protection of forests, and this is the amazing fact that we found and ex-Governor Sproul was able to make this expression:

"There is not enough timber raised in the State of Pennsylvania—I mean cut and harvested in the State of Pennsylvania, to furnish rough boxes for the people that die in this state annually."

Now that very same condition of affairs exists in some of the states and practically all of the states from which you come, and it is not simply a situation in these eastern states and in the central western states and in the southern states, it is getting to be a condition even in the west-

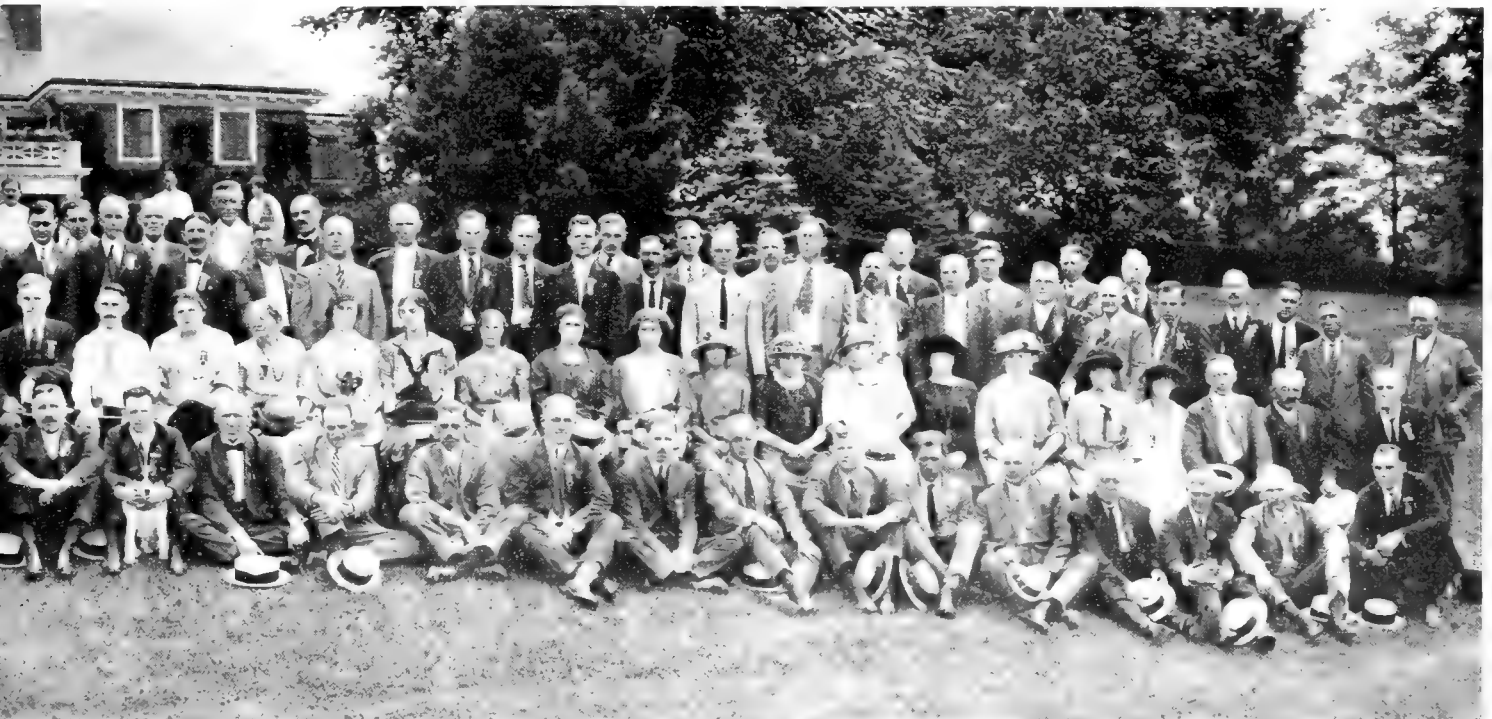
ern states where practically the majority of our timber supply now is.

Now just briefly from the standpoint of forest protection. First, there are a great many people who can't see the economic value in beautiful things, and that seems to be the thing that the people on the other side of the pond throw at the American people quite frequently, that we are a bunch of money grabbers and we can't see the æsthetic side of things. Thank God we are getting past that stage in America, and it is your association and associations like yours that are helping the American people to see something more than simply dollars and cents. We are looking out into the open and seeing the beautiful things of life, and we are willing to spend our life and our effort in making the scenery and the country surrounding our homes and our particular work more beautiful.

Why? For the fellow who happens to own the land? No? Outside of a little home that I own in Harrisburg I don't own a foot of land in Pennsylvania, but there isn't a man in Pennsylvania who gets more pleasure out of the beautiful things that other people have than I do and I don't envy them a bit; and that is so with you as gardeners, and you are working not simply for the man who has the land and money to pay you, but you are working for the pleasure of everybody who comes in contact with the beautiful things that you are doing.

And so from the standpoint of forest protection, I ask you if you want, to go into God's outdoors to recuperate, for recreation, to recreate your physical body and your mental body and your spiritual soul. You would not in God's country pick out a burned over forest area because it is not beautiful, and so you don't want anybody else to go into that kind of country and you don't want to see that kind of country. Neither do I. But this Spring in the State of Pennsylvania there were almost three hundred thousand acres of forest land made desolate by forest fires, three hundred thousand acres! In some of your states that area has been increased, I mean, there were more acres than that burned over. In certain areas of certain states there were less than that.

(Continued on page 240)



Lyon, Sewickley, Pa., during the time of its convention, held in Pittsburgh, August 14-17.

THE ROSE OF SHARON

THIS is the season of the year when we appreciate the merits of the Rose of Sharon (*Hibiscus syriacus*) with their Hollyhock-like blooms of many colors. There may be more choice Summer flowering shrubs, but if we were asked for the one that required the least attention, that is not exacting as to soil requirements and will even tolerate adverse city atmospheric conditions, our selection would be the Rose of Sharon. Yes, and it will grow in the shade, though it should not be expected to flower as freely in this position. From July until frost its flowers brighten the garden and landscape.

One may obtain a wide range of color in pinks, blue and pure white, and while we favor the single sorts, the double varieties are available for those who believe they last longer and they do not have the seed pods which some would consider as not ornamental. Totus albus is the popular single white; celestis, a beautiful single blue, and single pink does not appear to have been given any other name. Bicolor is a double cream with crimson center; Boule de Feu is a red; Lady Stanley, a double blush pink; Compte de Flanders, a dark red (double), and carnea plena, a double rose. For those who like a variegated foliage there is the old *Hibiscus syriacus variegata*, whose buds never open and the improved variety, Meehanii, having a single violet flower. The latter, as with other desirable sorts, is grafted on the roots of seedlings, though propagation may be done by cuttings also from seed if the color of bloom is not essential.

Many use the Rose of Sharon for hedge purposes, either alone or in conjunction with a screen of Lombardy Poplars. We prefer mixed colors for a hedge, with the lighter ones predominating. Massed in the background of shrubbery borders and as single tree form specimens it may be used. Although pruning is not necessary, stronger flowering wood is obtained by cutting back, in Winter or Spring, the new wood to one or two eyes, as with the *Hydrangea paniculata* and *grandiflora*, and thinning out superfluous branches as needed. This treatment also insures a shapely plant and keeps it in bounds.—*Florists' Exchange*.

WHAT IS A GARDENER?

WHAT is a gardener? He has been pictured in so many ways—good, bad and ridiculous—that to most people he is a conundrum. I have seen him pictured in many ways that were anything but flattering and which did not convey a sensible idea of what he was like or what he was supposed to do; but artists, I suppose, have license to apply a ludicrous idea to anyone. However, the gardener is a good natured fellow usually and does not worry over a caricature—wise or unwise.

"There are two varieties of the genus 'gardener,' one good for something and the other good for nothing. The first kind is scarce but, alas, the second variety abounds—the country is full of its kind, and one of the objects of this association should be to find some means of eradicating him root and branch, so as to allow the good variety to flourish and bloom to full capacity. The latter comes of vigorous stock, is healthy, lives in any climate, and there is no telling to what proportions he might attain, or to what heights his genius might rise. I believe there is a great deal of talent, energy and ambition in his make-up. We have with us today many of the old type of gardener—he who served an apprenticeship, who came through the 'College of Hard Knocks.' He has not much theory, does not go far out of the beaten track, has the range of plant growing in his grasp, eschews most literature and allied sciences, but is willing to 'swap experiences' with a fellow worker on the most intimate and

the best man in the world as a citizen generally; he'll take all that you like to give him and will give you anything you ask for, if he has it.

"The new type of a gardener is different and it is about him that I wish to speak today. He is not so much an all-round man, but specializes more; perhaps his preference is for one phase of plant growing, or even some particular plant. I am a great believer in specialties, but I like to see a man be an all-round man, if possible, as well. Hitherto the status of the gardener in Canada has been anything but flattering and the consequence has been humility, low wages and erroneous ideas as to his ability. His value to the community cannot be questioned. To the plant loving public his responsibility is great, in that good examples of his skill are always in great demand for the beautification of our home surroundings, whether those of peer or peasant, whether public or private. His field is also the introduction of new ideas and improvements in the cultivation of flowers, fruits and vegetables.

"A word to the gardener himself. It depends to a very great extent, on you yourselves, whether you rise above your present status. As before mentioned, in the past you have been kept down and have accepted the most modest consideration. Your value depends on how much you know and whether you are willing and ambitious to learn more and progress; to put your ideas into practical shape. Educated gardeners are today in great demand, in fact, the market has never been glutted with good men. If you seek anything earnestly the chances are invariably in your favor. It is not necessary to proclaim your prowess as a skilled man from the hilltops and brag about it. A man is usually judged on his merits or results and treated accordingly (at least this is my own observation) and as a consequence it is the position that seeks the man, not the man the position.—*Extracts from an address by W. J. Potter, Toronto, before Canadian Gardeners' & Florists' Association.*

DAHLIAS FROM SEED

(Continued from page 225.)

doors in some sunny window about the first part of April. The seed should be planted in boxes containing finely sifted soil and covered about a quarter of an inch. The soil must always be kept moist, and it is better if the box is covered with a pane of glass or piece of paper until the seeds break through the surface. The boxes should be kept in a cool room, as rapid growth in a warm room is detrimental to the plants. When the seedlings are about two inches high they should be transplanted into other boxes, being spaced two inches apart, or, better still, they should be potted in small pots. Care must be exercised not to let the plants become pot-bound at any time, and they should be shifted into larger pots when the roots become too crowded at the base of the ball of soil in the pot. If a hot-bed or cold-frame is available good stocky plants can be had for planting outdoors some time in May. After planting out, two systems of training may be practiced: (1) All side shoots may be pinched off, only the central shoot being allowed to grow. This method will produce few but very fine flowers. (2) When quantity of bloom is the object in the garden the plants may be pinched to about four main branches. No matter how they are trained, however, dahlias should always be staked, as sometimes a Summer storm lays them flat.

Failure with dahlias one year should not discourage the amateur from trying a second time. The behavior of the plants varies from year to year and unless conditions are ideal they will grow but give very few blooms. Except in a few favored localities in this country dahlia seasons are

Contributed by the author to the Gardeners' Chronicle.

Foreign Exchange Department

USE OF FLOWERING SHRUBS—It is with great interest that I read the article on Flowering Shrubs. It is not only a regrettable, but an astonishing fact what little use is made of this very interesting and beautiful branch of horticulture. This must surely be due to our narrow, flat, suburban. This country does not extend to public parks, why then it is also noticeable in nearly all good private town gardens.

Living in a big residential district, it is particularly irksome to my notice that it is possible to walk up drive after drive where the imagination of the householder seems never to have got beyond Aucubas, Laurestinus, Laurels, the more common Rhododendrons, variegated Privets, and an odd Maple, the last appearing to have come there by mistake. All these have their place, but they seem rather overdone. This choice collection is usually massed together far too closely, so that no shrub is allowed to attain its proper form, and is usually pruned in a manner to prevent all possibility of flowering. It seems, also, a rather common failing to allow shrubs to run out. They are left to take care of themselves for a number of years, when the owner suddenly becomes aware that his shrubs are leggy and very ugly. They are then ruthlessly cut nearly to the ground, and have to start their struggle anew. It never seems to occur to the owners that this state of things could, and should, be prevented by a little judicious annual pruning.

There are so many common and quite hardy flowering shrubs which need only the most ordinary cultivation and are quite independent as to soil. Think of the many beautiful Viburnums, the different-colored Weigelas, Cydonias, and Cytisus, the Buddleias, including B. Veitchiana, with its long purple racemes, and B. globosa, with its bright yellow balls, Kerria japonica, Deutzias, Philadelphus, Syringa, Forsythia, and Jasminum. All of these should have their place. Last, but not least, there is the Eucryphia pinnatifolia, to me the most beautiful of all shrubs, but which is rarely seen. There are hundreds which might be named, but I have purposely confined myself to mentioning some which may be grown easily by all in almost any locality.

There is another important point, that of artistic grouping. In some the artistic sense is natural, in others it is only developed by careful study.—*Gardening Illustrated*.

AUTUMN PRUNING OF ROSES—The removal of old growths after they have blossomed is a practice that may well be considered in the case of those sorts that flower once in a season only. If left till the usual Spring time of pruning these growths have only served to cramp and stifle the tree meantime, and therefore it will at once be seen that by taking away anything which prevents light and air is not encouraging to young, vigorous stems, which in respect to the Summer-flowering class is the style of growth desirable for a satisfactory display the following year.

The novice in Rose culture has only to first be satisfied as to what is a once-blossoming variety to know what to operate upon, and without naming a lot of sorts, American Pillar, Crimson Rambler, and Dorothy Perkins, three generally well known, may be mentioned as the class referred to. There are, of course, many of the type usually grown as climbers, pillar-trained either alone or in groups. It pays to thoroughly overhaul these specimens at the present season. By doing this we not only assist the growth that is wanted, help it to become strong, but much that is of a filthy nature, insect-covered and so on, is removed at the same time. Each plant or tree may have all its fastenings removed, then thinned and re-tied. It is easy to distinguish between those growths that have flowered and those which have not; it is the former we do not retain.

Other Roses, that is, the Autumn as well as Summer flowering ones, may in many instances be assisted by a little thinning just now, dwarf bushes, those of standard form and all. Here and there stems may strike out in a sucker-like form and quite out-distance the rest on the plant. Shorten such that they do not take too much of the life of the bush. If not done now this becomes necessary the following Spring, and meantime something is done to balance the growth and provide ample new and side branches.

AIKANET ANCHUSA ITALICA—We would like to see out a mass of this beautiful blue-flowering plant, which has now become one of our principal subjects for lighting up the borders during a large part of Summer. It is in bloom long before the charming Larkspurs, and forms little forests of growth, which in its turn becomes a mass of loose sprays covered with myriads of intense blue flowers (gentian-blue is the description given to the deepest colored forms by many enthusiasts). Then we have that exquisite pale blue form known as var. Opal, which

is a beautiful plant, and is well worth growing. It is a very hardy plant, and is well worth growing. It is a very hardy plant, and is well worth growing.

CASTANOPSIS CHRYSOPHYLLA—This interesting evergreen tree, the "Golden-leaved Chestnut" of the "Fog" and California—is carrying an unusually heavy crop of fruits this Summer.

These resemble clusters of small, Sweet Chestnuts, comprising burs, surrounded with spines, enclosing the edible nuts which germinate freely and provide a means of increase.

Though recorded as being first introduced in 1844, the Golden-leaved Chestnut has not been planted freely in Britain. In California trees exceeding 100 feet are on record. With us, at first, Castanopsis chrysophylla forms a shrubby bush, but, with attention to the leading shoot, and some thinning of the branches it becomes in time an attractive tree. The popular name refers to the color of the under-side of the leaves. The present abundant fruiting may be traced to the hot Summer of 1921, for the flowers of 1922 produced the fruits which are maturing at the present time.

TREATING THE SOIL FOR RHODODENDRONS—Now, who does not love Rhododendrons, but finds that in his soil they will not grow? Dr. F. V. Colville of the United States Department of Agriculture seems to have solved the difficulty by the addition of aluminum sulphate to the soil. The old plan was to add old leaves of an acid nature to the soil or to water with a solution made from certain barks, but this claims to stimulate the growth of certain varieties as much as 250 per cent. The experiments have been in progress for some years and Aaleas, Kalmias and Heaths are also benefited.

For years I have preached the immense value of humus in the soil and how essential it is in the drought of South Africa, but now we have a scientific confirmation of its value in its water retaining qualities.

100 lbs. dry sand can hold 25 lbs. water
100 lbs. clay can hold 50 lbs. water
100 lbs. Humus can hold 100 lbs. water.

In addition it promotes a chemical action or reaction which makes available to the plant food substances in the soil which are unaffected by other agents and this apart from its own great value as plant food. Therefore, to save your watering and to grow the best plants, use humus in your soil.

COMPOST FOR BULBS—Early Narcissi, Roman Hyacinths, and Tulips will soon require potting or boxing if flowers are to be available for the month of November and on through the Christmas time. The amateur cultivator often finds it difficult to obtain a suitable compost and so pots his bulbs in a quite unsuitable mixture. A north-country gardener once said to me: "I can grow bulbs in pure leaf-soil without going to any extra trouble to add soil." This is a very good plan, and I have found it to be so.

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but he favored leaf-soil more than any other ingredient. I have grown many thousands of bulbs in pots and boxes since those days and have found a mixture of leaf-soil two-thirds, old loam one-third, and a free sprinkling of sand to be a splendid rooting medium for all early bulbs.—*Gardening Illustrated*.

SPIRÆA TRICHOCARPA.—This new Spiræa is a first-rate shrub—in fact, one of the best of a useful if overcrowded genus of hardy, woody plants. It is a native of northern Korea, where it is a spreading bush about a yard high, but under cultivation it promises to grow to double this height. The shoots are angular, with prominent Winter buds, rigid and arching, forming a compact bush. A few hairs are present on the flower-stalks and carpels, otherwise the plant is glabrous. The short-petioled leaves are grass-green above, pale below, oblanceolate to elliptic-lanceolate, from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long and from $\frac{1}{2}$ to 1 inch wide, often broadest above the middle, narrowed to the base, with a few short teeth at and near the apex. The flowers are white, scentless, flat, above $\frac{1}{3}$ inch across, with emarginate, suborbicular petals; they are borne in rounded or dome-shape, 3 to 5 inches broad, corymbose clusters at the ends of short lateral leafy shoots.

This new Spiræa was discovered by T. Uchiyama in 1902, and subsequently named by Dr. Nakai. It is not uncommon in northern Korea, and especially on the Diamond Mountains, where it grows alongside streams and on cliffs. It was on these mountains that I found it in the Autumn of 1917, and sent seeds to the Arnold Arboretum. A good stock was raised, and this year plants have blossomed freely and shown the garden value of this acquisition. The plant has proved perfectly hardy in Massachusetts, and is as floriferous as any member of the genus. It is in full beauty of blossom when the flowers of *S. Henryi* are passing and before those of *S. Veitchii* open.

There are really too many Spiræas in cultivation, and for garden purposes the genus needs a thorough weeding. Recent plant introduction work in the Orient has added not a few species that have no particular claims as ornamental plants, but as compensation has given us some that are really superior to any other species. The hybrid *S. van Houttei* is not surpassed by any Spiræa, and in eastern North America is a favorite hedge plant. It flowers early, and is followed by *S. Henryi*. These two, with the new *S. trichocarpa* and the late-flowering *S. Veitchii*, are in my opinion, the finest of the true Spiræas with white flowers.—*E. H. Wilson, in Gardeners' Chronicle (British)*.

WHORL FLOWER (MORINA LONGIFOLIA).—This handsome plant does not appear to be so well known as it deserves, yet it is one of the most pleasing, distinct, and attractive plants now in bloom. The handsome spiny, polished leaves are conspicuous in themselves, and appear in graceful rounded clusters, from which arise the stout flower-spikes. The flowers are white and cerise, and abundantly produced in tiers upon the 2-foot to 3-foot stems. The Whorl Flower is a singularly attractive and pretty plant, unusually so during its period of bloom, and the effect of a group in bloom at the present time is decidedly good. It calls for no very special culture, and flourishes in any ordinary border soil, but is a lover of sunshine. Those who have not yet grown this distinct plant should certainly give it a trial.—*Gardening Illustrated*.

FRAGRANT TULIPS.—As the season for ordering bulbs is at hand, lovers of sweetly scented flowers should not overlook the Tulips. There may be several other varieties with which I am not acquainted, but the following three are very good, for, in addition to their delicious perfume, they are excellent for bedding and other purposes.

La Merveille is a characteristic Tulip and very sweet; the flowers are of terra-cotta color and produce a pleasing effect in groups and also when lightly arranged in vases. *Gesneriana lutea* grows rather taller than *La Merveille*, and its flowers are bright yellow, sweetly perfumed and most useful for cutting. *Ellen Willmott*, soft, creamy yellow, is also a very useful Tulip, apart from its sweetness.

For room decoration the flowers are best cut before they are fully open; in fact, I usually cut them when the flowers are just at the point of opening. There are numerous Tulips with charming colors, but few possess fragrance.—*Gardeners' Chronicle (British)*.

THE MEADOW SAFFRONS.—The name of Meadow Saffrons are frequently called in error "Autumn Crocuses," whereas they are distinct from the true Crocuses of Autumn, and the flowers less refined. Yet they are worthy a place in the garden of hardy flowers, because of their beauty and value at a season when low-growing bulbous plants are scarce, and as helping to redeem the front of the border of perennial plants from some of the dullness caused by there being few hardy perennials of dwarf habit in bloom in late Autumn. They are also desirable for growing in grass or in the wild garden, although they should not be planted in places to which cattle have access, for the leaves of *Colchicum*

autumnale have been known to poison cattle which have browsed upon them, and probably the other species would have the same effect where such animals have access to the foliage, which develops in Spring. The chalice and cups of some of the Meadow Saffrons are very beautiful, and, as the foliage seems immune to the attacks of rabbits, their utility is obvious in certain places frequented by these animals.

The Meadow Saffrons have pleasing flowers, supported on long tubes, and it is desirable to grow them through dwarf herbage, which not only preserves the blooms from being splashed through heavy rains, but it relieves the bareness of the flowers when on uncarpeted ground. The plants will grow in any soil, but have a preference for ground which is not too light and is fairly moist. They do well on light, dry soil, but they do not attain the large size of those grown in richer earth.—*Gardeners' Chronicle (British)*.

Brief Horticultural Jottings

The rubber situation promises to be acute in a few years, according to rubber men, since not enough is being grown in the tropics to supply future demands, and much of that is now under foreign control, notably British. To stimulate research, Congress recently appropriated \$500,000 for developing a domestic supply. Plantations in the Philippines have been proposed, but owing to the fact that cheap contract labor, which is not permitted in these islands, is a vital necessity to the production of rubber in competition with foreign countries which permit it, and that such plantations could not be made productive in time to be of aid in the expected famine, the idea will doubtless be abandoned. Horticulturists, however, are giving the plan close attention. They are investigating the possibilities of at least two native plants for the production of rubber. One is the staghorn or hairy sumac, and the other is the ordinary milkweed. Both have a thick, white gummy sap, which forms a sticky, rubber-like mass on drying. Both can stand cold, something which no rubber plant can do.—*American Florist*.

At the seventy-fifth meeting of the board of directors of the United States Chamber of Commerce held in Washington, the following action was taken: The executive officers were authorized to request the appropriate officials of the national government to investigate the policies and actions of the Federal Horticultural Board with a view to lessening the severity of the restrictions imposed by that board in administering the plant quarantine act.

Apple growers of the upper Hudson River Valley are concerned over the appearance in their orchards of a pest known as the thorn and apple skeletonizer, whose destructive proclivities have been felt hitherto in the counties nearer the metropolis. Pomologists are finding difficulty in battling with the scourge because of the rapid flight of the moth which lays the eggs that ultimately develop into leaf-destroying caterpillar. It was finally identified as the skeletonizer, whose ravages in Europe had cost apple growers fortunes. Efforts to check its spread have not been successful. This newest of scourges to worry the apple grower is no stranger to portions of Connecticut, Vermont, Massachusetts and New Hampshire, where it had gained a foothold before the seriousness of its ravages was understood. As in insect invasions, spraying with arsenate of lead has been found helpful, though the gradual increase in the territory in which the plague is found indicates lack of thoroughness in the use of insecticides. Frequent and thorough spraying should be the policy of every apple grower.—*N. Y. Herald*.

To Owners of Country Estates

The Association of Country Estate Gardeners, a Service Department of the American Horticultural Society, is now accepting applications for membership. For full particulars, in addition to the above, please apply to the Secretary, at once.

Gardeners desiring the services of gardeners, thoroughly versed in all phases of the profession and qualified to assume the responsibilities the position calls for, as superintendent or gardener, should apply to this department.

The association makes no charge for any service it may render to its members.

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AMERICAN HORTICULTURAL SOCIETY, NEW YORK

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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LOCAL BRANCHES

NEWPORT, R. I.: Andrew L. Dorward, chairman; Frederic Carter, secretary.

ST. LOUIS, MO.: George H. Pring, chairman; Hugo M. Schaff, secretary.

NASSAU COUNTY, L. I.: James Duthie, Oyster Bay, chairman; John McCulloch, Oyster Bay, secretary.

BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Craig, Weymouth, secretary.

WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

CLEVELAND, O.: R. P. Brydon, chairman; Arthur Brown, secretary.

NORTH SHORE OF ILLINOIS: James A. Wilson, Lake Forest, chairman; John R. Clarke, Glencoe, secretary.

MONMOUTH & ELBERON, N. J.: Thomas W. Head, Red Bank, chairman; Frank T. Edington, Red Bank, secretary.

OFFICERS ELECTED FOR 1924

President ROBERT P. BRYDON, <i>Cleveland, O.</i>	Vice-President JAMES STUART, <i>Mamaroneck, N. Y.</i>
Secretary M. C. EBEL, <i>Summit, N. J.</i>	Treasurer MONTAGUE FREE, <i>Brooklyn, N. Y.</i>

TRUSTEES (For 1924)—D. L. Mackintosh, Alpine, N. J.; Percy Hicks, Oceanic, N. J.; Donald Crighton, Convent, N. J.; John Barnett, Sewickley, Pa.; William E. Fischer, Chagrin Falls, O.

THE 1923 CONVENTION

Pittsburgh's Welcome to the Gardeners

The opening session of the twelfth annual convention of the National Association of Gardeners convened at two-thirty o'clock on Tuesday, August 14, 1923, at the Fort Pitt Hotel, Pittsburgh, with Manus Curran of Sewickley, Pa., presiding as temporary chairman. In calling the convention to order, Mr. Curran asked the assemblage to rise and observe silence while George F. Stewart of Waltham, Mass., offered an invocation in memory of our late President, Warren G. Harding.

After the invocation, Mr. Curran introduced H. M. Irons, City Solicitor, who in the absence of the Mayor, represented the City of Pittsburgh and on whose behalf he extended the official welcome. While Mr. Irons stated that Pittsburgh is more generally recognized as an industrial center and would have much in that respect to show the gardener, horticulturally it would probably not measure up to some other cities they had visited. Nevertheless, he believed the gardeners would find much of interest in Pittsburgh's parks and on the beautiful estates in its out-lying districts. Mr. Irons admitted his slight knowledge of gardening, though, he could, he said, distinguish between a rake and a hoe and considered gardening a most healthful recreation and its profession one of the noblest, one full of inspiration which does much to uplift the humdrum existence of mankind. He added that an organization, such as the gardeners' national association, could find many opportunities to take part in civic activities, tending towards community improvement.

E. J. McCallum, representing the Pittsburgh Chamber of Commerce, who was the next speaker introduced, after welcoming the gardeners on behalf of the organization he represented, elaborated on the suggestion of Mr. Irons that the gardeners interest themselves in civic affairs. He spoke of the home gardens in which he believed interest should be revived to make them as important factors today as they were when they were known as "war gardens," emphasizing their value in food production which is again being restricted because of labor shortage. Mr. McCallum also stated that no more healthful recreation could be found than that which may be derived through gardening, for young and old.

Robert P. Brydon of Cleveland, Ohio, vice-president of the association, in responding to the addresses of welcome by Mr. Irons and Mr. McCallum, said: "We are here today for several purposes. We are assembled here in convention to discuss the problems which are of interest to ourselves, to discuss ways and means for bettering our conditions, but we are also here to see what the City of Pittsburgh has to offer us. We are here to see your buildings, your industries, your parks, your private estates, anything that will be of general interest to our profession. We are not only interested in gardening, but interested in everything else. On the other hand, it has occurred to me that it may be possible for us to leave something with you. In 1919, the National Association of Gardeners met in Cleveland. The inspiration that went out from that meeting created one of the finest and best movements in school gardening in the history of the United States. As a result of that convention, Cleveland has the finest school gardening course and greenhouses for the purpose; it has also a fine nursery; it teaches propagating, growing of plants, marketing, and everything that pertains to that line. As I have said, the inspiration has come from our association. Now is it not possible for us to leave something like that with the City of Pittsburgh? Is it not possible for you to get something from us so that we may feel that we have come here for some purpose, to give as well as to receive?"

Mr. Curran next introduced John C. Slack, a member of the Garden Club of America and of the Garden Club of Allegheny County, who bore greetings and welcome. Mr. Slack is a man well versed in the art of gardening and botany. In welcoming the gardeners to Pittsburgh on behalf of the organizations which he represented, Mr. Slack said: "In this day of sordid, narrow, self-interest and strife for advantage in almost every relationship of life, the devotion shown by each of you to the promotion of the beautiful, and the wider enjoyment of it, has formed a tie and a fraternal spirit with the Garden Club members, which has brought to them joy and happiness heretofore unrealized in the lives of many. You are truly missionaries, working in a fruitful and promising field, with sincerity and singleness of purpose in the work, and forgetful of the sordidness and commonplace in life,—forgetful of mere personal aggrandizement,—approaching your work in a spirit of the creative artist, enjoying the gratifications of a new contribution to beauty which you so generously give to the world without thought of reward, and thereby bettering and uplifting those about you. Because of all this, the Garden Club members feel that they are led and stimulated by you to work together for the betterment of the world, and are first to acknowledge a debt of gratitude and appreciation due to you, by which they have so wonderfully profited. I am also directed

to tender on behalf of the Garden Club members the freedom of their gardens, and to deliver to you the heartiest invitation to visit them."

President Barnett also received a message from Mr. Samuel Sloan, president of the Garden Club of America, as follows: "May I send you all my best wishes for a successful meeting, and my congratulations for what the association has accomplished in the past."

In responding to Mr. Slack's greetings, William N. Craig of Weymouth, Mass. said: "It was a delight to listen to the remarks of the previous speaker. He represents the Garden Club of America, a club which has done more to stimulate, to uphold, and to advance horticulture than any organization I know anything of in recent years. It was the ladies who planned and started and are the bulwark of that body. A poet has well said the following:

Where is the man who has the power and skill
To stem the torrents of a woman's will,
For if she will, she will, you may depend on't,
And if she won't, she won't, and there's an end on't?

"We would have but little horticulture, very little floriculture in America but for the ladies, God bless them! You will find in any part of the country you may reside in, that the men, the bulk of them, are too busy amassing riches to think of the finer arts of horticulture and floriculture, but we are advancing, and the Garden Club of America, working in combination with the various florists' and gardeners' clubs, and this association and other bodies, does a great deal to stimulate horticulture in its best sense. I have great hope of any country where the children in the schools are taught nature studies and where horticulture and the love of horticulture are inculcated in their veins while young. Shakespeare has also well said that 'Gardening is an art that doth mend Nature, change it rather, but the art itself is Nature.' And can you think of any occupation in the world more interesting, more refining, more spiritual than gardening?"

"The Garden Club of America has done more than we appreciate in bringing together the estate owners and the gardeners. Gardening is a fine art which requires a vast amount of care and forethought, ladies and gentlemen. The gardeners are oftentimes not sufficiently appreciated, but since the advent of the Garden Club of America better relations have existed between the employer and employee, and the growth of this Garden Club, with the continued growth, as I hope, of our association, will still tend to foster and uphold the great profession of gardening, the advancement of our country, and the making of a more beautiful America."

Following Mr. Craig's remarks, Mr. Curran turned the meeting over to President John Barnett who presented his address, (It appears on page 207 of the August issue) after which Mr. Barnett introduced George H. Wirt, Chief Forest Fire Warden of the State of Pennsylvania. Mr. Wirt addressed the convention on the subject of forest conservation. (His address appears on page 226 of this issue.) In concluding, Mr. Wirt referred to the remarks of a previous speaker who laid the credit of the organization of garden clubs to the ladies. He then asked if the gardeners had ever stopped to consider who really was the first gardener, suggesting that if they had their Bibles with them, they read the first and second chapter of Genesis. "It was not Adam, but some one before. God planted the first garden and placed man in it. Then when reading, very carefully note who was responsible for the second gardener losing his job. Now, thanks to the first Gardener, He has instilled in the minds of our women folks, the very right idea that we come back to God through Nature, and they are doing the gracious act when they help you and me to find a place in the sun raising garden, making things beautiful and making ourselves worthwhile," said Mr. Wirt.

Thomas W. Head of Red Bank, New Jersey, thanked Mr. Wirt for his illuminating address and recalled an address he had heard sometime ago by Congressman M. L. Davey in regard to our forests and how they were becoming denuded, and stated at that time he thought what a wonderful opportunity the gardeners had. Mr. Head admitted, however, that he did not realize then, and he believed that not many others realized, how much work there is to be done along this line. Mr. Wirt's address showed the work before them and opened the way.

After several announcements were made by President Barnett, referring to the business sessions and the entertainment features of the convention, the opening meeting was adjourned.

WEDNESDAY MORNING SESSION

The second session of the convention opened at nine thirty o'clock on Wednesday morning, August 15, with President John Barnett, presiding, who called upon Secretary M. C. Ebel for his annual report (It appears on page 208 of the August issue) and for the Secretary's financial statement which follows:

Secretary's Financial Statement

New York, N. Y., August 1, 1923
Cash and bank, Sept. 1, 1922 \$1,033.83
Received for 1922 Dues 620.05
Received for 1923 Dues 3,045.00
Received for 1924 Dues 10.00
Received for 92 Sustaining Memberships 920.00
Total \$5,733.88

Received for 1922 Dues 620.05
Received for 1923 Dues 3,045.00
Received for 1924 Dues 10.00
Received for 92 Sustaining Memberships 920.00
Total \$5,733.88

Payments to Treasurer, Voucher No. 226, Slips Nos. 1-19. \$5,733.88
Appropriation voted to Secretary for office rent, assistant's salary, printing, postage, stationery, telephone, telegraph, and other expenses pertaining to the operation of the Secretary's office, at the Boston, 1922, convention, and paid by the Treasurer \$3,000.00

M. C. EBEL,
Secretary.

Pittsburgh, Pa., August 14, 1923.

We have completed our audit of the accounts of your Secretary up to August 1, 1923, and are pleased to report that we find the statement as rendered above to be correct.

GEORGE F. STEWART,
ROBERT P. BRYDON,
JAMES STUART,
Auditing Committee.

It was regularly moved that the Secretary's report and financial statement be received and placed on file.

President Barnett then called on Treasurer Montague Free for his report which follows:

Treasurer's Report

Brooklyn, N. Y., August 1, 1923.

Receipts.

Balance in Bank, Sept. 1, 1922 (Gen'l Fund) .. \$2,318.08
Balance in Bank, Sept. 1, 1922 (Res. Fund) .. 397.28
Deposit voucher No. 226, Slips Nos. 1-19
(Gen'l Fund) 5,738.88
Interest, General Fund 19.89
Interest, Reserve Fund 16.84
Interest, Liberty Bond 42.50
Total \$8,533.47

Disbursements.

Vouchers Nos. 406 to 431 as follows:
The Multi-service Bureau, Inc. Voucher No. 406 \$3.75
Dieges & Clust, medals 14.00
Chronicle Press, Inc., rental office space
Voucher No. 408 100.00
Chronicle Press, Inc., for advertising
Voucher No. 409 20.00
Secretary, for office expenses Voucher No. 410 116.25
Secretary, honorarium (for 1922) 1,000.00
The Convention Reporting Co. Rept. Boston
Convention 85.40
Secretary's Appropriation:
Sept. 1, 1922 to Aug. 31, 1923 \$3,000.00
Less vouchers Nos. 406, 408, 409,
410 240.00
Total 2,760.00
American Surety Co., premium on treasurer's bond 7.50
The Chronicle Press, Inc., subscriptions 1,399.50
Treasurer's postal expenses 1.28
Exchange charges40
Member's check return 'no funds' 5.00
Total 5,513.08
Balance in Bank, Aug. 1, 1923 (Gen'l Fund) .. 2,143.27
Balance in Bank, Aug. 1, 1923, (Res. Fund) .. 877.12
Total 3,020.39
Total \$8,533.47

Investments.

Third Liberty Loan Bond \$1,000.00
MONTAGUE FREE,
Treasurer.

Pittsburgh, Pa., Aug. 14, 1923.

We have completed our audit of the accounts of your treasurer up to Aug. 1, 1923, and are pleased to report that we find the statement as rendered above to be correct.

GEORGE F. STEWART,
ROBERT P. BRYDON,
JAMES STUART,
Auditing Committee.

It was regularly moved that the Treasurer's report be received and placed on file.

As Secretary Ebel had no committee reports or communications to present at the time, the business proceeded to the consideration of the next meeting place.

Spring Meetings at Cleveland and at Boston, 1924

An invitation received from the Cleveland Branch to hold a Directors' meeting and a Spring meeting of all members during the week of the National Flower Show the latter part of March, 1924, was favorably acted upon. It was also decided to maintain an Information Booth at the National Flower Show to enable country estate owners to become better acquainted with the activities of the association, and incidentally to promote a campaign for an enlarged sustaining and active membership.

On the invitation of the Boston Branch, it was also favorably voted to hold a Spring meeting in that city during the National Orchid Show which will occur in May, 1924.

Awarding the Association's Gold Medal

It was proposed to award the association's gold medal at the National Flower Show at Cleveland and at the National Orchid Show at Boston, which at once provoked quite a discussion, many of the members urging that the medal should not be awarded except for something well merited as a horticultural achievement. It was pointed out that the gold medal had been awarded but four times in twelve years: to George H. Pring of St. Louis, Mo. for a new water lily; to Adolph Lewisohn of Ardsley, N. Y. for the most meritorious exhibit at an International Flower Show, New York; to George F. Stewart of Waltham, Mass. for a new calceolaria; to William H. Waite of Rumson, N. J. for a meritorious exhibit of new dahlias. The decision was finally reached that the gold medal be offered as an award for a meritorious effort in horticulture, the conditions of the award to be left to the judgment of committees which will be appointed by the Cleveland Branch and by the Boston Branch.

1924 Convention

Washington, D. C., Newport, R. I., and Detroit, Mich., were proposed as meeting places for the 1924 convention. It was voted to leave the final decision to the Board of Directors at its meeting to be held at Cleveland next Spring.

Nomination and Election of Officers

The nomination and election of officers for 1924 resulted as follows: For President, Robert F. Brydon of Cleveland, O.; for Vice-President, James Stuart of Mamaronock, N. Y.; for Secretary, M. C. Ebel of Summit, N. J.; for Treasurer, Montague Free of Brooklyn, N. Y.; three Trustees for the state of New Jersey, D. L. Mackintosh of Alpine, N. J., Percy Hicks of Oceanic, N. J., and Donald Crighton of Convent, N. J.; two Trustees at large John Barnet of Sewickley, Pa., and William E. Fischer of Chagrin Falls, O.

Appointment of Committees on Resolutions

President Barnet appointed H. E. Downer, Arthur Brown, and Robert De Schryver to consider recommendations made in the Secretary's report and to submit resolutions; Committee on Resolution on Deceased Members, David Fraser, Ernest B. Palmer, and George F. Stewart; Committee on Final Resolutions, William N. Craig, D. L. Mackintosh, and James Stuart.

Following a Round Table discussion recess was declared.

WEDNESDAY AFTERNOON SESSION

Local Branches

The following delegates reported as representatives of the local branches: F. L. Balogh for the Cleveland Branch; William N. Craig for the Boston Branch; Thomas W. Head for the Monmouth & Elberon, N. J. Branch; John R. McCulloch for the Nassau Co., L. I. Branch; Manus Curran for the Western Pennsylvania Branch. All the delegates reported progress and growing interest in the branches, stating that they were of the opinion that the branches would, in time, become a strong co-operative factor in the administration of the association. Questions pertaining to the individual policies of the branches were asked and answered, such as what actually comprises the membership of a local branch, the duties of its officers, methods of defraying expenses. Experiences of various branches were related, showing that each branch has its self-government. Some of the members present declared that after the interesting discussion, they were prepared to return to their homes and to endeavor to organize local branches in their districts.

The Official Organ

Some discussion arose regarding the status of the official organ in its relation to the professional gardener, some members contending that it should be more representative of the gardener himself. It was explained that while it is the policy of the GARDENERS' CHRONICLE to cater to the gardeners, it also realizes

that it has a mission to perform in presenting their cause to the outside world, and thus acquaint the public with what a trained gardener is and the recognition he is entitled to. The aim of the official organ is to interest the employers in it and have them read what the gardeners are striving for. That is the way in which the association is securing recognition for the gardeners. George F. Stewart spoke for the GARDENERS' CHRONICLE and stated that there is a phase of the subject which had hardly been touched upon. He said: "Our National Association of Gardeners is an organization to establish a better relationship between employer and employee. I find from letters received during the little time I have been writing for the paper that this is being done by the CHRONICLE. Employers have written me and told me that they never knew what a gardener really was until they began to read the CHRONICLE; that they never knew that a gardener really knows as much as he does. Now the CHRONICLE is doing just what our national association is here for. And furthermore, since writing these notes, a better relationship has been established personally between my employer and myself. He became a sustaining member and received the paper, and not being very well posted on many things, pertaining to gardening, he reads the paper as do also his wife and daughter. Personally this has been a good thing for me."

On Training Young Men

A communication from the Pennsylvania State College was read which invited the association to co-operate with it in establishing a course for training young gardeners, somewhat similar to that now in force at the Massachusetts Agricultural College in co-operation with the association. The Pennsylvania State College advised that it expects to acquire control of a large private estate in Pennsylvania which has been willed to be devoted to the training of young men in gardening. This estate is said to contain one of the finest collections of rare trees and shrubs in this country, which makes it especially valuable for the purpose for which it has been set aside. The association voted to give its whole hearted support to the Pennsylvania State College in any movement it may undertake to train young gardeners. The question arose as to whether it will ever be possible to make the profession of gardening sufficiently attractive to the American youth, the contention being that the American boy seeks something more lucrative as his life work. This argument, however, was disproved by the interest the American youth is already manifesting in the gardening profession, since the means have been provided to acquire theoretical knowledge as well as practical experience. The American youth realizes the advantages of the environment connected with the vocation of gardening and the broad fields of endeavor which the future of the gardening profession in America offers. Whenever the subject of the future prospects of gardening in this country is discussed among gardeners, there is always found to be a diversity of opinion, but at the convention, the optimistic views out-weighed the pessimistic ones. While it was agreed that not many gardeners will ever attain wealth through their vocation, it was conceded, however, that the gardener holding a comfortable position, is fully as well situated in life as the followers of many other professions, not in remuneration only but in other ways also. While the ability of the gardener has not been recognized in the past, as it should have been, conditions are changing and the capable men of the profession find that their efforts are being more appreciated today than they were heretofore.

Committees on Resolutions

President Barnet called upon the committees on resolutions to present their resolutions, which were submitted and accepted as follows:

Resolution on Professional Ethics

WHEREAS it seems to be the thing to do in these days of business turmoil, whenever a vocational convention meets, to pass resolutions glorifying itself while criticizing an affiliated vocation for its shortcomings,

BE IT RESOLVED, That the National Association of Gardeners strongly protests against the attacks aimed at the gardener and his profession from time to time relating to professional ethics. The association does not claim that all gardeners are as yet immune from temptation but it does claim that the members of the gardening profession are not as sorely afflicted with corrupt practices as are the followers of some of the other vocations.

BE IT FURTHER RESOLVED, That the National Association of Gardeners confirms the action taken at the Cleveland convention in 1919, endorsing all standards which tend to elevate the professional ethics and business methods in all fields of endeavor.

H. ERNEST DOWNER.
ARTHUR BROWN.
ROBERT DE SCHRYVER.

Resolution on Rumor-Mongers

WHEREAS, the Secretary has directed attention in his report to the injury at times done to fellow members through the circulation of false rumors,

BE IT RESOLVED, That the Secretary be instructed, whenever a rumor may be brought to his attention concerning a member, to immediately institute an investigation and if this rumor is unfounded and it has been found to have originated with a member of the association, to act in accordance with Article II, Section 8, of the By-Laws, the Executive Board authorizing the Secretary to call together a committee of three members of the Board as its authorized committee to confer on what action shall be taken.

H. ERNEST DOWNER,
ARTHUR BROWN,
ROBERT DE SCHRYVER

Resolution on Deceased Members

The members of the National Association of Gardeners assembled in their annual convention at the Fort Pitt Hotel, Pittsburgh, August 15, 1923, wish to express their sincere sorrow at the loss their ranks have sustained in the death of their fellow members, Frank J. Dupignac, William Grey, M. J. O'Brien, Douglas Smith, E. Stuart Smith, Frank E. Ehrler, George Jacques, J. Carroll Hawkes, John S. Hay, and wish to express their sincere sympathy to the families and those near and dear in the loss they have sustained, a loss we equally share.

RESOLVED, That a copy of these resolutions be forwarded to the families of the deceased members and spread on the records of the association.

GEORGE F. STEWART,
DAVID FRASER,
ERNEST E. PALMER.

Final Resolutions

The members of the National Association of Gardeners assembled desire to extend their thanks and appreciation to all those who have contributed to the success and enjoyment of our annual convention here in Pittsburgh.

We specially desire to tender our thanks to the Western Pennsylvania Branch for the splendid program and entertainment provided by it; to the various local committees under the able chairmanship of Manus Curran, who have added so much to make our visit to Pittsburgh a most enjoyable one; to the ladies' committee which has specially provided entertainment for the visiting ladies to the convention; and to the Pittsburgh Florists' and Gardeners' Club for the enjoyable reception tendered to us.

Finally we request that Mr. Curran send a personal letter of thanks to all who cordially invited us to visit their estates.

WILLIAM N. CRAIG,
JAMES STUART,
D. L. MACKINTOSH.

President Barnet then announced the business sessions of the convention adjourned.

ENTERTAINMENT FEATURES

Illustrated Lecture

On Tuesday evening at the Fort Pitt Hotel, an illustrated lecture was given by E. J. Cogshall of the Carnegie Institute on "Hunting Big Game in the Rocks." The subject was very interesting and unusual, the illustrations showing the excavation of the mammoth fossils of pre-historic days from the rocks in the desert of Utah, and the assembling together of the parts in the laboratory of the Institute. Pictures were also shown of the covering of these fossils with rubber skins to give some idea of their appearance when they inhabited the earth thousands of years ago.

The Annual Banquet

On Wednesday evening, the annual banquet was held at the Fort Pitt Hotel. The banquet hall was very artistically decorated with palms and gladioli, presenting a pleasing effect. President Barnet, after welcoming the guests, requested George F. Stewart to offer a blessing after which the gathering sang "America." He then introduced Ira S. Harper of Pittsburgh who presided as toastmaster and performed his task in a witty and clever manner, keeping the banqueters in good humor throughout the evening. Mr. Harper called on Robert P. Brydon, vice-president of the association and president-elect, as the first speaker, who referred to the honor which had been conferred upon him earlier in the day and assured the members that he will carry on the affairs of the association to the best of his ability, and will endeavor to make progress his watchword. James Stuart, vice-president-elect, also expressed his appreciation of the honor conferred on him and stated that he would, as in the past, continue to do his part for the welfare of the association. William N. Craig paid his respects to some of the pessimistic views voiced during the business sessions regarding the future of the gardening profession, when

he said that gardeners are the most comfortably situated men on earth, for they derive the pleasures of an estate without having to pay the bills. He expressed his opinion that gardening is an excellent profession for young men to enter, as it is one of the fine arts. George F. Stewart said he was disappointed at his fellow gardeners in the view they held about the American boys and gardening, adding that the American boys will learn far more quickly, and use their faculties in a wider measure than "the pessimistic men from across the sea." He admonished his listeners not to worry over the future of gardening in this country, for man can not get away from gardening which is God's own occupation. D. L. Mackintosh had evidently exhausted himself on the more serious problems of life earlier in the day, so entertained the guests with some of his Scotch wit, contributing to the mirth of the evening. Jack Baxter proved so enraptured with his profession that he could not forget it even at the banquet table and spoke of the wonderful opportunities offered the gardeners as green-keepers of country clubs, that is, for those who know how. John R. McCulloch recalled the days of his arrival in this country in 1889, when he purchased a ticket for Pittsburgh and found himself in Chicago, and had to wend his way back to the former city, where he secured a position as a mill hand at the princely salary of \$33.20 a month, from which was deducted \$7 for board and room. Mr. McCulloch compared this salary with what the young men of today receive while securing their training. Andrew Rogers was reminded of the story of a doughboy who attempted to fill the place of General Pershing at a meeting when the General failed to appear as speaker of the evening. Noting the disappointment of the audience, some one called out, "Don't forget this young man went through h— for you. You ought to be willing to do likewise for him." Mr. Andrews requested his hearers to bear with him in what he was about to go through, adding that he enjoyed attending conventions for it afforded an opportunity of meeting old friends and making new ones. Thomas W. Head stated that a little comedy injected in life relieved its more serious side, and it seemed to him that it had been one comedy after another since his departure from home. Andrew Wilson upheld his reputation as a story teller and amused his listeners with jokes, novel and antique, possessing the cleverness of fitting his tales to individuals present. Mr. Wiseman mentioned the floral decorations appearing in some of the seedsmen's and florists' shops in Pittsburgh, showing the emblem "N. A. G." which had stirred the curiosity of the residents of Pittsburgh, as to what "NAG" meant, to whom it was explained that its real meaning is progressiveness. F. T. D. Fulmer, who was one of the oldest members of the association present, both in point of age and in membership, and had travelled the farthest distance to attend the convention, spoke of his pleasure in being able to be with his fellow gardeners and related some of his experiences in gardening in the past, comparing it with the progress of recent years. Neil McCallum spoke of the ancient history of flowers and ended his remarks with the words of Kipling—

"And only the Master shall praise us, and only the Master shall blame

And no one shall work for money, and no one shall work for fame,

But each for the joy of working, and each, in his separate star,
Shall draw the Thing as he sees It for the God of Things as They are!"

The banquet was concluded with the singing of "Auld Lang Syne." Throughout the evening, the famous "Dixie Lindsey Quartette" provided entertainment, and later furnished music for dancing.

Thursday's Automobile Tour

The convention party left the Fort Pitt Hotel in automobiles at nine-thirty o'clock, traveling over the Boulevard from which an excellent view was obtained of the mammoth steel mills; thence through the grounds of the University of Pittsburgh, and on to the East End, the beautiful residential section, where the grounds of the attractive homes were observed to be well landscaped and maintained in fine order. The automobiles passed through the estates of Andrew Mellon, Secretary of the Treasury, R. B. Mellon and D. M. Clemson, situated right in the city of Pittsburgh, and on to Schenley Park, where the visitors walked through the large conservatories, regarded as one of the best park conservatories in the country. The party then proceeded through West Park and continued on its way to Sewickley, passing through stretches of wonderful scenery en route. In Pittsburgh in front of the Carnegie Library, a "Welcome Convention" flower bed was noted, also a "Welcome Gardeners" flower bed at Schenley Park, and another at West Park, "Welcome N. A. G., 1923." Many of the seedsmen's and florists' windows were decorated and said it with flowers in welcoming the gardeners to their city.

Arriving at Sewickley Heights, the party went direct to the estate of Mrs. J. D. Lyon, where President Barnet is superintendent. No time was lost in gathering at the tables placed on the lawn, where a luncheon was served and enjoyed by all the

conventionists. During luncheon, a long distance telephone message was received by President Barnet from Mrs. Lyons, who had just arrived in New York from Europe, asking him to extend Mr. Lyons' and her greetings and to wish everyone an enjoyable time while on their estate. Mr. Mackintosh responded on behalf of the visitors and asked Mr. Barnet to convey to Mr. and Mrs. Lyons their appreciation of the cordial greetings and hospitality. On leaving this estate, the party drove through the grounds of the Allegheny Country Club, regarded as one of the finest of its kind in America, and then wended its way through the slopes of the Allegheny Mountains, commanding remarkable views of the mountain sides. The following estates were visited: W. B. Schiller (C. E. Norton, superintendent), N. B. Snyder (William Thomson, superintendent), B. F. Jones (George W. Brownhill, superintendent), Mrs. W. A. Laughlon (Henry Goodband, superintendent), Mrs. William Hemp (John Jones, superintendent), H. L. Mason (James Murphy, superintendent), Mrs. H. R. Rea (Alex Davidson, superintendent), Mrs. J. B. Oliver (Francis B. Reig, superintendent), Mrs. Halsey Williams and John C. Slack, after which the automobiles returned to Pittsburgh, arriving at the Fort Pitt Hotel about seven o'clock. The weather man had been most thoughtful, for the day had been cool and clear, and no smoke screen shrouded the views from the visitors at any time.

Reception to Gardeners

Thursday evening the Pittsburgh Florists' and Gardeners' Club tendered the convention party a reception in the English Room of the Fort Pitt Hotel. Tables were arranged for those who desired to play cards, while ample space was provided for those who preferred to dance. A splendid orchestra furnished music. Later in the evening a collation was served, and general good fellowship prevailed. On behalf of the club, William Thomson welcomed the guests, to which William N. Craig responded on behalf of the members of the association. Andrew Wilson also entertained with songs, dances and stories.

Viewing the Industrial Side of Pittsburgh

The first visit of the convention party on Friday was to the plant of the H. J. Heinz Company, where it was conducted by guides through the various departments, showing how the "pickles and preserves" are prepared. All enjoyed a short, but interesting, lecture on the preparation of the Heinz products, after which the party sat down to a nice spread, although it was not able to partake of all the "57 varieties." In the afternoon several hours were spent at the Westinghouse Electric Company's plant at East Pittsburgh, which proved most instructive in many ways.

Farewell Dinner

When the party returned to the hotel, a farewell surprise in the nature of a dinner was in store for it, served in the Dutch Room and tendered by the members of the Western Pennsylvania Branch. Manus Curran welcomed all in the name of the local branch, to which Robert De Schryver responded. Mrs. Jack Baxter accepted this occasion as an opportune time to thank the Ladies' Committee on behalf of the visiting ladies for the pleasant entertainment provided for them, and did this most appropriately. Mrs. William Thomson, chairwoman of the Ladies' Committee, replied in a fitting manner. The event was accepted by those present as a splendid finish to the altogether successful convention.

Ladies' Entertainment

The visiting ladies were well taken care of from the moment of their arrival at the Fort Pitt Hotel, where the Ladies' Committee, of which Mrs. William Thomson was the chairwoman, greeted them. At noon on Tuesday they became the guests of the Ladies' Committee at luncheon, after which they attended the opening session and in the evening the lecture by A. J. Cogshall. On Wednesday, the ladies were taken on a sightseeing and shopping tour of the city, with a luncheon arranged in their honor at one of the well-known restaurants, followed by a theater party, and returning to the hotel to participate in the annual banquet. On Thursday and Friday, they accompanied the male members of the convention party on the sightseeing trips.

SIDELIGHTS OF THE CONVENTION

The efficient manner in which Chairman Manus Curran conducted the opening session and the Parliamentary tact displayed by President John Barnet throughout the business sessions was a demonstration of how far the gardeners' ability extends. There appears to be no limit to it, for whenever gardeners gather together, someone may be found to cope with any situation, whether it be preaching, directing, arguing, or entertaining. Each year at the convention, we learn more and more what the capabilities are which professional gardeners possess.

After City Solicitor Irons handed the keys of the City of Pittsburgh (so to speak) to the visitors, he lauded the gardening profession and extolled the good the gardener is doing as a benefactor of mankind. He said that the rake and hoe hold more interest for him than a driver and putter, and that he finds more pleasure in hoeing a garden than in "plowing up" a golf course; that to him, gardening is a far healthier recreation than golf, which is rapidly developing into a "foot and mouth disease"—the golfer hoofs it over the course all day and argues about the game all night.

George H. Wirt admitted he knew the difference between a rake and a hoe, but he would not delve deeply into the subject and so find himself in the place of the minister who addressed his Sunday School class on the benefits to be derived from the great outdoors, saying that he was raised among the corn stalks. Upon questioning his scholars, "What would you call me?" the proverbial little Johnny replied, "Preacher, I'd call you a pumpkin."

Scotch wit seemed to be somewhat dulled during the opening session, but came into evidence during the business sessions and at the banquet. When D. L. Mackintosh attempted to introduce a little comedy during a strained moment at the Tuesday morning session, John R. McCulloch rose and protested that comedy should be prohibited whenever a meeting is found in a serious strain of mind. It might be added that the protestant was later converted and found himself a regular "sketch" before departing for home.

After the members had retired to their rooms from the banquet shortly after midnight, they were treated to a succession of loud explosions, which brought everyone to the windows to endeavor to discover what was about to befall them. Thomas W. Head, on noticing a reflection on the wall (which was caused by the sputtering of some trolley wires) concluded that a severe thunder storm was approaching and returned to bed, rejoicing that it had not arrived twelve hours later, when it might have caught the conventionists, partaking of a delicious luncheon on a Sewickley estate. From an adjoining room came the suggestion that someone must have set the mines off. Andrew Wilson, though his head appeared well out of the window, claimed he was not disturbed at all by the racket, for it simply reminded him of the good old days when the bowling tournaments were included in the convention programs. Our curiosity not being satisfied by any of the suppositions, we called the telephone operator, who informed us that the noise was due to the culmination of an Italian celebration on a hillside. Those bombs were certainly well charged!

As the automobile party on Thursday morning traveled through the streets of Pittsburgh in a line of over forty cars, composed of Pierce Arrows, Packards, and cars of similar make, furnished by employers of local members, some driven by liveried chauffeurs, and each bearing the banner of the National Association of Gardeners, the man in the street must have imagined that the association was allied with the moneyed interests. While this is not exactly so, nevertheless, every member in the line became imbued with a spirit of optimism over the promising prospects which the future holds forth for the profession.

That Pittsburgh possesses more than merely smoke and money became quite evident as the party motored through the extensive grounds of the University of Pittsburgh with its many magnificent structures devoted to learning. The Bostonians appeared amazed to find that Boston does not have a monopoly on culture.

When the convention party reached Mrs. Lyons' estate, President Barnet, who has the supervision of this beautiful estate, was observed on the lawn, attired in white flannels, which caused a young lady in the party to remark, "Why, that must be the owner." A little later when seated at one of the luncheon tables, she again saw President Barnet, this time assisting the steward hustling the waiters about, she remarked to her mother, "That man we saw was not the owner. He must be the butler." Had she noticed him a few minutes later, lecturing the waiters who had upset a tub of ice and rock salt on his beautiful lawn, which threatened its ruin, she might have guessed right as to his real identity.

After James Stuart had consumed his third helping of the bountiful luncheon, he recalled that no oysters had been served. This caused him to comment that the steward must be a Scotchman, for the Scotch despise oysters, as there is too much waste to them for the shells cannot be eaten.

George F. Stewart, who traveled from Massachusetts to the convention city by auto, accompanied by his sons (two American youths of whom he can be justly proud, who are following their father's profession) said that a long felt desire to see something of the West had been gratified, that crossing the Alleghenies was indeed wonderful, and that he expected almost any minute to see Macbeth and MacDuff step out of the wilderness for their mortal combat. F. T. D. Fulmer, hailing from Iowa, previously expressed

his gratification on being able to come East to attend the convention.

During the reception tendered by the Pittsburgh Florists' and Gardeners' Club, William N. Craig told the story of the Scotch gardener who awoke one morning to find that his wife lay dead beside him. Greatly startled, he jumped out of bed, rushed to the head of the stairs and excitedly called to the maid, "Mary, Mary, boil only one egg this morning!" Someone asked Mr. Mackintosh if he could beat that for Scotch thrift. Rising, he said he could only illustrate it by showing how very economical a Scotchman can be with the use of words when he had nothing to say—and then sat down.

After the visiting gardeners had had an opportunity to inspect the "Work Shop of the World," as Pittsburgh is sometimes called, and to inspect at first hand the conditions under which the mill hands labor and their home surroundings, they began to realize that their lot in life is not such a bad one after all, that their profession has much to offer which cannot be enjoyed in the heart of industrialism.

DIRECTORS' MEETING

A meeting of the Trustees and Board of Directors was held at the Fort Pitt Hotel on Tuesday forenoon, August 14, with President Barnet presiding. The following were present, H. Ernest Downer, Montague Free, James Stuart, D. L. Mackintosh, R. P. Brydon, Thos. W. Head, George F. Stewart, and M. C. Ebel.

There was considerable business brought before the meeting much of which was recommended to be submitted to the open convention for final decision. Different reports received showed that the association is making excellent progress and that it is commencing to bear the fruit of its early efforts; especially is this true regarding the organization and activity of the local branches, and the interest which the employers, the country estate owners, are manifesting towards the association was also noted to be increasing, as has been evidenced by the past few conventions.

JOHN W. JONES

John Wynne Jones, familiarly known to thousands of flower lovers throughout the country as the man who made Phipps conservatory, Schenley Park, famous for its beautiful flower shows, died in Mercy Hospital of bronchial pneumonia the day the convention of the National Association of Gardeners, of which he was a member, closed, and for the success of which he had striven hard before illness overtook him.

Shortly before the convention opened, he constructed a carpet bed design of flowers on a plot leading to the conservatory, embracing in it a welcome to the delegates. He went on his vacation for a visit to a brother in Toronto. On his return he contracted a cold that brought about his death.

He came to Phipps conservatory 30 years ago from New York and every year since then has given Pittsburgh a Spring and Fall show that experts say has never had a parallel. His hobby was Chrysanthemums and he created varieties of the flower that have had no equal.

He was born in Wales and was 64 years old. In addition to the national association, he belonged to, and was a former president of, the Pittsburgh Florist and Garden Association and the Botanical Society of Western Pennsylvania. Besides his brother Thomas, Toronto, he leaves his widow, one son, John W. Jones, Jr., a daughter, Helen W. Jones, and a sister, Mrs. James Smart, Carnarvon, Wales.

THE GARDENERS MARCH OF PROGRESS

The definite and commendable progress of the profession of gardeners along the route toward higher professional ethics and greater professional efficiency in common with other groups of commercial horticulturists, has been well typified of late in at least two widely separated cities. Reports of progress and of action aiming toward further development were naturally to be expected from the annual convention of the National Association of Gardeners that has just closed at Pittsburgh. The addresses of the president and secretary of the Association, thoroughly justify those expectations.

The interesting discussion of the gardener's position and prospects that took place at the convention of the Canadian Florists' and Gardeners' Association, and the still more significant forming of a gardeners' sub-section of that organization during the meeting, furnish further testimony to the increasing importance and growth of this branch of the horticultural profession. Perhaps the most gratifying phase of this whole subject is the clear indication of the increasing co-operation that is developing between the

gardeners themselves and the more commercial interests and representatives of the horticultural industry. With keener mutual understanding and greater harmony between these groups, the permanent welfare of both and the inevitable broadening of horticultural achievements are bound to result.—*Florists' Exchange*.

WHY NOT INCLUDE THE GARDENERS?

The truth of Christ, which alone can make men one and enable them to enter into the liberty which belongs to the sons of God, is being proclaimed not only from the pulpits of the land, but also from practically every platform where public questions are considered. Doctors and lawyers, bankers and educators, politicians and captains of industry, judges and statesmen are all heralds of the glad tidings which shall bring great joy to the people.—*Standard Union*, Brooklyn, N. Y.

Had the writer of the foregoing article attended the gardeners' convention and listened to the frequent Scriptural quotations in reference to applying them to our every-day life, he surely would have included the gardeners as heralds of glad tidings.

LETTERS OF APPRECIATION

The secretary received the following letter from an estate owner in Massachusetts:

"I am enclosing my check for \$10 as my sustaining dues to the National Association of Gardeners, which I am much pleased to have joined for I certainly think it is a most excellent thing. I want to take this opportunity to tell you how very satisfactory

— has been, and how grateful I am to you for recommending him. He has been with us for two years and a half and we are exceedingly pleased with him in every way. He is not only efficient, able and knows his work, but he has a sense of responsibility and a feeling for our interests which is very unusual. As his coming to us was entirely due to you, I am taking this opportunity to thank you.

I hope the Association is getting on well for it certainly fills a long felt want."

The secretary received the following letter from an estate owner in Ohio:

"Your letter of the 13th inst. at hand and contents noted. It is true that I have a new gardener, ———— and I think he is going to make a very good man. Since he belongs to your Association, you may be interested in knowing how I, personally, feel about him. He is a credit to your Association, a man who understands his business and attends to it strictly.

To please him I have no objection to becoming a sustaining member of your Association for I am interested in any organization which aims to elevate the standard of the gardening profession."

MONMOUTH & ELBERON, N. J. BRANCH

A meeting of the local members of the National Association of Gardeners was held on August 11 at the Elks' Club, Red Bank, N. J., for the purpose of organizing a branch of the national association. Thomas W. Head was elected chairman and Frank T. Edington, secretary. Mr. Head explained the advantages of a local branch and the opportunities which it gives to members to keep in closer touch with the activities of the parent society. After the organization, the members present engaged in some interesting discussions. Mr. Head was appointed to act as delegate of the branch to the annual convention at Pittsburgh, after which the meeting adjourned.

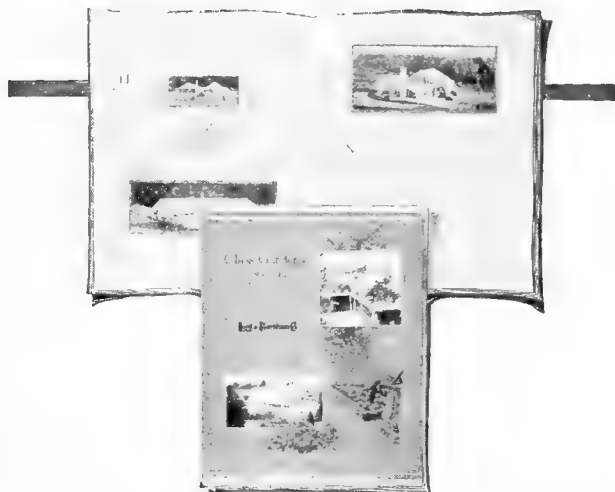
FRANK T. EDINGTON, Secy.

NEW MEMBERS

Sustaining: Arthur V. Davis, Millneck, N. Y. (Alexander MacKenzie, superintendent); Sigmund Stein, Hartsdale, N. Y. (William G. Ellis, gardener); Charles M. Schwab, Loretto, Pa. (Nathan Ireland, superintendent); Miss Mabel Choate, Stockbridge, Mass. (Robert Crighton, gardener); Charles K. King, Mansfield, Ohio (Earl Robertson, superintendent); S. C. Pirie, Sea Cliff, L. I. (Ross Gault, gardener); Mrs. Walter S. Mitchell, Pittsburgh, Pa. (Robert Ladner, superintendent); Mrs. A. D. Baldwin, Cleveland, Ohio; Mrs. C. A. Otis, Willoughby, Ohio (Hugh Thomas, superintendent); Miss Belle Sherwin, Willoughby, Ohio (Luther B. G. Webb, superintendent); L. E. Sisler, Akron, Ohio (William Mailer, gardener). *Active:* Charles Lawrence, New York City; E. J. Sohmers, Syosset, L. I.; Allan Roberts, Grosse Pointe, Mich.; William S. Alt, Hyde Park, N. Y. *Associate:* Harold E. Leary, Donaldson M. Smith, Boston, Mass.; Edward A. Manda, West Orange, N. J.

REGISTER OF THE ANNUAL CONVENTION OF THE NATIONAL ASSO. OF GARDENERS, PITTSBURGH, PA., AUGUST 14, 15, 16, 17, 1923

Mr. and Mrs. John Barnet, Sewickley, Pa.
 Robert P. Brydon, Cleveland, Ohio.
 George F. Stewart, Waltham, Mass.
 Andrew K. Rogers, Readville, Mass.
 Frank Murray, Boston, Mass.
 James Moore, Pittsburgh, Pa.
 Augustus T. Frishkone, Pittsburgh, Pa.
 Mr. and Mrs. Henry Goodband, Sewickley, Pa.
 Mr. and Mrs. Oscar Carlson, Fairfield, Conn.
 Mr. and Mrs. Jack Baxter, Chicago, Ill.
 Mr. and Mrs. John M. Fornoff, Pittsburgh, Pa.
 Mr. and Mrs. William Thomson, Jr., Sewickley, Pa.
 Edith Thomson, Sewickley, Pa.
 Mr. and Mrs. John Carman, Sewickley, Pa.
 James Gibb, Cleveland, Ohio.
 Mr. and Mrs. C. M. Wagner, Baltimore, Md.
 Andrew Wilson, Springfield, N. J.
 William N. Craig, Weymouth, Mass.
 Robert De Schryver, Grosse Pointe, Mich.
 Mr. and Mrs. David Fraser, Pittsburgh, Pa.
 M. C. Ebel, Summit, N. J.
 Dorothy Ebel, Summit, N. J.
 E. B. Palmer, Roslyn, L. I.
 Carl Burger, Spring Lake, Mich.
 James Stuart, Mamaroneck, N. Y.
 Mr. and Mrs. Montague Free, Brooklyn, N. Y.
 D. L. Mackintosh, Alpine, N. J.
 H. E. Downer, Poughkeepsie, N. Y.
 Edward A. Manda, West Orange, N. J.
 Mr. and Mrs. Manus Curran, Sewickley, Pa.
 Mr. and Mrs. F. L. Balogh, Cleveland, Ohio.
 Mr. and Mrs. Lewis Barnet, Pittsburgh, Pa.
 Irving H. Stewart, Readville, Mass.
 Gordon P. Stewart, Waltham, Mass.
 Thomas Sturgis, Detroit, Mich.
 Xavier E. E. Schmitt, Philadelphia, Pa.
 James Stewart, Pittsburgh, Pa.
 Hiram A. Frishkone, Pittsburgh, Pa.
 George H. Fellow, Cleveland, Ohio.
 Arthur Brown, Cleveland, Ohio.
 James Hamilton, Cleveland, Ohio.
 E. J. McCallum, Pittsburgh, Pa.
 Thomas S. Tyler, Pittsburgh, Pa.
 Thomas W. Head, Red Bank, N. J.
 Mr. and Mrs. Alexander MacLeod, Villa Nova, Pa.
 James Wiseman, Pittsburgh, Pa.
 Mr. and Mrs. Robert Ladner, Pittsburgh, Pa.
 Herman Rapp, Sewickley, Pa.
 Richard Boxel, Sewickley, Pa.
 Edmund Ruprecht, Shields, Pa.
 Sabin Bolton, Pittsburgh, Pa.
 John J. Costoff, Sharpsburg, Pa.
 Mr. and Mrs. Neil McCallum, Pittsburgh, Pa.
 Elspeth McCallum, Pittsburgh, Pa.
 Fred Wissenbach, Pittsburgh, Pa.
 George W. Burke, Pittsburgh, Pa.
 Harry M. Irons, Pittsburgh, Pa.
 Samuel A. Leuba, Pittsburgh, Pa.
 E. Marquandt, Sewickley, Pa.
 A. P. Longland, Cleveland, Ohio.
 W. E. Fischer, Chagrin Falls, Ohio.
 George B. Green, Pittsburgh, Pa.
 John C. Slack, Edgeworth, Pa.
 Roderick W. Ross, Dixmont, Pa.
 Mr. and Mrs. Robert Lillie, Detroit, Mich.
 Neil T. Forsyth, Greensburg, Pa.
 James Steven, Cleveland, Ohio.
 Mrs. George Clark, Pittsburgh, Pa.



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With greenhouses, as with autos and most other things, there are a certain few that are favorites.

Year after year those same favorites have continued to be favorites.

Such being the case, then, there must be certain very logical reasons for it.

Reasons that will appeal to you quite as they have to others.

Appreciating such, it's a wonder we hadn't thought long ago to bring these favorite greenhouses together and make a special little catalog of them.

However, we have done it now. Done it in a most attractive way

that we are sure will appeal to you and your love of flowers and growing things.

Five favorites are shown, among which unless we are greatly mistaken, you will find just the greenhouse that best suits your needs and fits your pocketbook.

There are plenty of photos of both exteriors and interiors, besides plans and ample description.

So complete is it, that without any further ado, houses have been purchased directly from it. Mayhap you will do the same.

You are most welcome to a copy of this new Glass Garden Catalog.

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Buffalo White Bldg.	St. Louis 704 E. Carrie Ave.	Toronto Harbor Commission Bldg.
		Chicago Cont. Bk. Bldg.
		Boston-11 Little Bldg.

Mrs. Rebecca Bowker, Pittsburgh, Pa.
 Thomas H. Vought, Wilkinsburg, Pa.
 James W. Hopton, Pittsburgh, Pa.
 John R. McCulloch, Oyster Bay, L. I.
 Thomas Knight, Rutherford, N. J.
 J. T. D. Fulmer, Des Moines, Iowa.
 Perle B. Fulmer, Des Moines, Iowa.
 Walter L. Voss, Erie, Pa.
 Edward A. Ward, Newark, N. J.
 Donaldson M. Smith, W. Somerville, Mass.
 Harold E. Leary, Cambridge, Mass.
 Dan Altieri, Pittsburgh, Pa.
 A. G. Nash, Dawson, Pa.
 George C. Smith, Canandaigua, N. Y.
 F. B. Rieg, Shields, Pa.
 Mrs. A. H. Barnet, Pittsburgh, Pa.

Robert Gardner, Pittsburgh, Pa.
 Miss C. Gardner, Pittsburgh, Pa.
 George W. Duncan, Youngstown, Ohio.
 Edwin Forsey, Youngstown, Ohio.
 Ernest E. Grey, Elkins, W. Va.
 E. Barmwater, New York, N. Y.

LOCAL SOCIETIES

NASSAU COUNTY HORT. SOCIETY

At the last meeting of the above society, it was decided to hold the Dahlia Show and Chrysanthemum Show in Pembroke Hall, Glen Cove, L. I.; the Dahlia Show on Sep-

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tember 27-28 and the Chrysanthemum Show on November 1-2. J. H. Martin of Westbury was elected to active membership and three petitions for active membership were received. President James Gladstone appointed John F. Johnstone, Robert Honeyman and J. H. Andrews to judge the exhibits and their decisions were: 6 ears of sweet corn 1st, James Kelly; a plate of apples, var. "Sops of Wine," exhibited by James Hollaway received the thanks of the society. J. H. Andrews, president of the Oyster Bay Hort. Society, spoke on the coming Dahlia Show in Oyster Bay. Exhibits for September meeting, 6 onions; 3 sticks of celery; 1 musk melon.

ARTHUR COOK, Cor. Sec'y.

WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting was held in Greenwich, Conn., Aug. 14, with President Rutherford in the chair. Three new members were elected.

The Flower Show Committee reported final preparations for the show which is to be held in the Greenwich Y. M. C. A., Sept. 12-13-14. Over \$1,200 worth of space has been subscribed for the program booklet. The proceeds from the show will be for the benefit of the Port Chester and Greenwich Hospitals. Schedules may be secured from the secretary, George Hewitt, Belle Haven, Conn. In the exhibits for monthly competition the results were as follows: John McCarroll, 1st, for a vase of Dahlias; M. D. Robertson, 2nd, for a Phoenix Robelenii; James Tough, 3rd, for a vase of Buddleia; Edwin Beckett, 4th, for Thalictrum dipterocarpum; James Linane, 5th, for a vase of Dahlias. For vegetables, James Linane 1st,



Interior of Patented V-Bar Greenhouse Erected on the Estate of Mr. Carl Tucker, Mt. Kisco, N. Y.

V-Bar Greenhouses *Ideal for Growing*

We have been guided, in the scientific construction of the Lutton V-Bar Greenhouses by the experience of the men best qualified to know what is needed, the Gardeners themselves. The light, graceful, rustless V-Bar not only makes the greenhouse beautiful to look at, but adds many years to its life. Note particularly in the above photograph the almost entire absence of shadows. The eave line is unobstructed. Side ventilation is obtained by means of cast-iron wall panels built into the foundations.

Exclusive and peculiar to the Patented Lutton V-Bar Greenhouse is the extra high headroom over the side benches. This is due to the fact that a side light 24" wide x 30" high is used, and either 24" or 30" radius curved eave.

Just as important, however, is our indestructable type of plant benches with galvanized iron frame, porous tile bottoms and slate retaining sides.

No other greenhouse can have the V-Bar construction, as it is patented. The V-Bar itself shows up small when viewed from the side, and the condensation gutter can easily be seen in the photograph.

The man who has a Lutton V-Bar Greenhouse knows that it is the most durable, lightest, strongest, most sanitary and efficient type of greenhouse built.



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John Andrews 2nd, for collections; H. F. Bulpitt 3rd, for a plate of tomatoes, also a vote of thanks for same. Charles H. Totty was the speaker for the evening. His subject, "Roses, Indoors and Out," was one on which he has a wide knowledge. It created considerable discussion, the audience being invited to ask questions. A rising vote of thanks was tendered Mr. Totty.

A report of the Basket Committee was heard. It was agreed by all present that the outing at Silver Lake, White Plains, Aug. 8, was a great success.—ANDREW KNEUER, Cor. Sec'y.

THE CLEVELAND HORT. SOCIETY

The regular meeting of the above society was held Aug. 9 at the home of C. F. Irish, arborist, with President J. M. Stevens in

the chair. The president requested all members present to stand in silent respect in memory of the late George Jacques, who was superintendent for W. G. Mather, Lake Shore Boulevard, for the past seventeen years, and a member of this society since it was organized.

After the regular routine of business was finished the advisability of holding a Fall show this year as planned was discussed. It was the consensus of opinion that a show on a large scale would possibly conflict with plans for the national show to be held here next Spring, and it was finally arranged to hold a small show among the members only so as to keep up the interest in the growing of exhibition mums, the show to be held some time in November. A vote of thanks was tendered Mr. Irish for his hospitality.

W. J. BRUCE, Sec'y.

COMING EXHIBITIONS

Boston, Mass.—Massachusetts Horticultural Society; Fruit and Vegetable exhibition, Sept. 28 to 30; Autumn and Chrysanthemum exhibition, Nov. 2 to 4. Exhibitions at Horticultural Hall. Sec'y, Edward T. Farrington.

Greenwich, Conn.—The Westchester and Fairfield Horticultural Society, Rye and Riverside Garden Clubs cooperating, will hold an exhibition of flowers, plants, fruits and vegetables in the Y. M. C. A. building at Greenwich, Sept. 12, 13 and 14. Sec'y, George Hewitt, Greenwich, Conn.

Newark, N. J.—First annual exhibition of the Dahlia Society of New Jersey. Robert Treat Hotel, Sept. 13, 14 and 15. Sec'y-Treas., Mrs. Stephen G. Van Hoesen, Fanwood, N. J.

New York City—Annual Dahlia Exhibition of the Horticultural Society of New York, Museum Building, New York Botanical Garden, Bronx Park, Sept. 21 (from 1 to 5 p. m.), 22 and 23 (from 10 a. m. to 5 p. m.) Secretary's office, 598 Madison ave., New York City.

New York City—American Dahlia Society; annual meeting and exhibition, Sept. 26 to 29 at Hotel Pennsylvania. Sec'y, Wm. J. Rathgeber, 198 Norton st., New Haven, Conn.

New York City—American Institute. Flowers, fruits and vegetables, Oct. 3 to 5, at 25 W. 39th st. Sec'y, J. W. Bartlett, 324 W. 23d st., New York City.

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CRASSULACEÆ, THEIR PROPAGATION AND CARE

(Continued from page 221)

When the leaf is somewhat withered, it is placed on sandy soil which should be kept moist. A glass plate covers the container of leaf and sand. This keeps the temperature and the moisture as uniform as possible. Roots and small leaves will soon be formed at the notches. The leaf which acts as a store room for the undeveloped shoot will die after a few leaves have been produced.

THE AMERICAN DAHLIA SOCIETY SHOW

By RICHARD VINCENT, JR., PRESIDENT

THE Dahlia of today and the Dahlia of yesterday are two different things, and the Dahlia of the present time will to a big extent possibly change considerably in the near future.

It vies in beauty with any other garden flower, both in formation and combination of color which cannot be surpassed. It is a flower which can be grown by anyone with a little margin of care. It is a flower which attracts either in the palace or the cottage garden.

There is something interesting in the growing of the Dahlia which attracts people, amateur gardeners, and well versed growers. And that is the raising of seedlings; it is interesting to watch their development. It is seldom that a real worthwhile new variety is obtained, although many think they have one when their seedlings come into bloom. When we consider how many varieties named are in existence, we can understand how hard it is to have a variety come which is distinct from those formerly produced.

There are constantly a large quantity of the Peony type being brought forward by raisers, but at the present time what is most needed is types with good stiff stems and of fair size, but not monstrosities, such varieties as can be handled easily and are of good keeping qualities.

The American Dahlia Society is doing good work to help this cause along, and to give growers of new varieties a chance to test out their seedlings of merit. It has two trial grounds established which are looked after by competent men who know and are acquainted with the majority of the older varieties, and can soon after the flowering season inform the raiser whether he has something new or not. The coming season we expect to have trial gardens in different sections started, aiming to carry on the good work to the best advantage of all concerned.

In addition to the Society trial grounds there are several other places where Dahlias can be seen growing and properly labeled. One of these is at the Bronx Park, New York, under the auspices of Dr. Marshall A. Howe (curator of Botanical Gardens). He has over eight hundred plants, comprising over four hundred kinds, old and new

varieties, and it is interesting to note any fine day, when the Dahlias are in full bloom, the number of visitors who are taking notes of the various kinds for their future use.

The Shaw Botanical Gardens at St. Louis, Mo., this year has a goodly collection planted under the auspices of Dr. Moore (director) and we hope to have a trial garden there next year where those varieties most suitable for the Central West can be tested.

The Show of the American Dahlia Society on the Roof Garden of the Pennsylvania Hotel, New York, September 26-29, will undoubtedly be one of the largest the Society has ever held, and any one who misses it will miss a treat.

A large number of Garden clubs who have affiliated, will be with us showing some fine productions. The invitation is open, come, see, and judge for yourselves as to the beauty of the Dahlia.

ON FOREST CONSERVATION

(Continued from page 226)

Now those fires that we have creating such desolation in this state and other states are due largely to one thing, and that is, carelessness on the part of somebody—carelessness! So I appeal to you as gardeners in seeing that the surroundings in which you are located are more beautiful than they are now, that you help foresters wherever they may be in their efforts to keep the backgrounds of the Commonwealth green.

Wordsworth, I think, has said:

"Oh Thou Painter of the fruits and flowers,

We thank Thee for Thy wise design,

Whereas in Nature's gardens our hand may work with Thine.

Give fools their gold and knaves their power,

Let fortune's bubbles rise and fall,

Who sows a seed or trains a flower, or plants a tree is more than all!"

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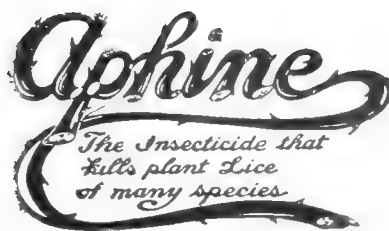
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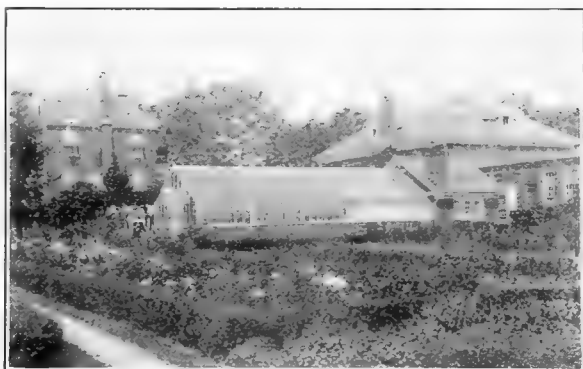
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

OCTOBER, 1923

No. 10

Things and Thoughts of the Garden

WILLIAM N. CRAIG

AMONG the most valuable of hardy herbaceous perennials in the flower garden in Fall are the Japanese Anemones. It is true that in some seasons we do not get our full measure of value from them on account of early frosts, so it is always well to give them a fairly sheltered location. While they look well in clumps in a mixed perennial border, they are much more impressive if planted in front of evergreens in large bold masses. There are a number of named varieties all of which are very pretty, but if restricted to but one it would be *A. japonica alba*, the single white form. In my estimation this is incomparably the best either in the garden or for cutting; the semi-double Whirlwind of more recent introduction is handsome but not equal to the older variety. There are several good pink or lavender forms and of these none of the more recent introductions are superior to Queen Charlotte of a pleasing La France shade of color. Fall is not a good time to plant these Anemones, as plants from pots in Spring are the more dependable. While it is perfectly true that they will thrive in full sunshine, they succeed even better when they are in partial shade, and protected from high winds. The ground for Japanese Anemones should be liberally manured and deeply spaded for the best results, which means plants 5 or 6 feet in height. Many amateurs fail to winter these lovely perennials successfully. While with the bulk of hardy perennials it is best to wait until the ground is hard frozen before applying any Winter mulch, in the case of Anemones it is best to give a liberal covering of leaves in order to exclude frost from the roots as much as possible. A common practice is to place a covering of rotten manure on perennial beds just ere Winter sets in. With Anemones, this is better deferred until the mulch is removed in Spring. There are some sections where it is rarely possible to get any flowers before killing frosts arrive, and there the culture of some plants in large pots, which can be plunged during the hot months, or better still in tubs, will ensure a fine display. Grown thus and well watered and fed the Japanese Anemones are splendid for use in the conservatory or on piazzas and porches which are not too exposed. The propagation of Anemones is simple; the thicker roots can be cut in short lengths and placed in a sand bench in a greenhouse, or a little later in the season, a cold frame can be utilized for them. These will produce plants in abundance.

It seems strange that practically no one in America has taken up the hybridization of those beautiful hardy flowers, the Michaelmas Daisies or Autumnal Asters. With the Solidagos they make a truly enchanting display each late Summer and Fall. They are so abundant and common that the average amateur has rather neglected and even despised them, and planted in their stead subjects both less reliable and beautiful. In our native forms there is an infinite range of forms and colorings and many of these are so much improved by cultivation as to be almost unrecognizable. It has remained for a number of hardy plant specialists abroad, particularly in England, to improve the hardy Asters by selection and hybridization, and the bulk of our fine garden varieties have come from there. We cannot all have special borders devoted to their culture such as are to be found at Aldenham Court, Mr. Vicary Gibbs' beautiful and well-kept estate in Hertfordshire, England, whence have come many fine new varieties, but we can at least give them more attention than in the past. Their hardiness is unquestioned and late varieties will show up charmingly when frosts have spoiled such plants as Anemones, Kniphofias, Dahlias, Gladioli, and other Fall blooming subjects. Many are excellent in the wild garden, but spaces should be found for a good number in the perennial border or hardy garden. If wanted purely for cutting, one or two rows may be advantageously placed in the kitchen garden. For those who have hitherto neglected these lovely plants I would suggest buying a few good varieties now, such as Perry's Pink, Dainty, White Queen, Climax, White Climax, Glory of Colwall, Top Sawyer, Felt-ham Blue, Lil Fardell, Perry's Blue, Perry's White and St. Egwin. I would also suggest buying a packet of a good strain of seed; sowing these in Spring and planting out in rows in the reserve garden will give a surprising range of forms and colorings and some of the very best can be retained for use in the garden borders and others naturalized in the wild garden, if you have one.

* * *

Hardy Asters are rarely seen in pots, yet they make very desirable plants in the Autumn when flowering plants are scarce. For two or three years I grew them in this way and they proved very acceptable for decorative purposes. Seeds were sown in March under glass, seedlings were pricked off and later potted into 3-inch pots, and later to 5-inch ones, the

pots were plunged to their brims in an old hotbed and allowed to root through; treated thus they made nice bushy plants which were smothered with flowers. Some of the hardy Asters are of quite dwarf habit and these are specially good for pot culture. If some grower would like to make a pleasing innovation at a Fall exhibition I should suggest a batch of hardy Asters grown in this way. For those who do not possess a greenhouse, I should say that these hardy perennials can be sown in April or May in a cold frame, planted out when of sufficient size in a nursery row, and all will flower the following Autumn.

* * *

Immediately following the hardy Asters come the pompon Chrysanthemums, in fact a number of varieties of the latter are blooming before many of the Asters have passed. One or two varieties of Chrysanthemums were in good bloom outdoors here in the first week in October, and close flowered varieties of rather small size are found the most dependable. In some seasons the single varieties, which under glass are most beautiful, will do fairly well in this portion of New England but their thin petalage is a decided drawback outdoors when we get windy, stormy weather, for the same reason the large double flowered varieties are not dependable. There is, however, a continued growth in the popularity of the pompons and as late as Thanksgiving they may be seen in many a little garden when all other flowers have passed. At our Fall exhibitions we see collections of what are called "hardy Chrysanthemums"; these, however, are grown under glass and not a few are of no earthly value outdoors. What would be more educational, even though the flowers were of less high grade quality, would be bunches of flowers which had really been grown outdoors. It is for these varieties that thousands of amateurs would cheerfully pay a fair price. While a number of these Chrysanthemums are perfectly hardy in well-drained ground and with me have wintered without protection, if a cold frame is at command, it is good policy to store one or two clumps there over Winter.

* * *

Among low-growing perennials with blue flowers which come in season quite late, *Plumbago Larpentæ* is one of the best. The deep blue flowers are carried in clusters, and are produced very abundantly over quite a long period. This plant is a native of the Himalayas and Northern China and in our more northerly states needs some Winter protection. It is a splendid plant for either the rock garden or for a bordering subject and for the blue garden it is absolutely indispensable. The botanists have for some years dropped the name *Plumbago* in favor of *Ceratostigma plumbaginoides* but the earlier name is so much more easily remembered that there is small likelihood of the newer and longer one displacing it.

* * *

It is easily possible to get a fine display of *Delphiniums* late in the season by making one or two sowings of seed of either *D. chinensis* or the *belladonna* and *formosum* hybrids. In late September and through October these make an excellent show, and the spikes produced are on the average much better than old cut back plants. Plants from sowings made early in June are now making a lovely show; the *chinensis* are rather dwarf but on the *formosum* hybrids, spikes a yard in length are not uncommon, and this has been a very arid season with a deficiency of nearly 9 inches in precipitation on October 1. These plants need but no special watering but the culti-

vator has been constantly plied about them. Usually in our herbaceous border displays we depend on a secondary crop of spikes from old plants, sometimes they are good but this season they have been somewhat disappointing unless water in abundance has been supplied. The production of this second crop of spikes undoubtedly weakens the plants and makes them more susceptible to disease. Of course, where neatness in the garden is demanded the cutting back to get a late crop is necessary, but if the faded flowers and seeds only were removed there would be a striking difference in the vigor of the plants the following year. With choice varieties it would pay amateurs to try a few plants cut back, and merely remove the seeds from others and note the difference in the vigor of the latter the following season.

* * *

Each year many amateurs fail to successfully winter foxgloves and Canterbury bells. It is not so much the cold as the warmth and heavy Winter covering which is the cause of death. In too many cases, as soon as the leaves fall, they are spread over these and sundry other plants with the idea of keeping the plants warm. This Winter protection should be applied rather with the idea of keeping the ground frozen and preventing alternate freezing and thawing of the ground which causes heaving. A heavy Winter coating of leaves or any other mulch, applied while the ground is still warm, is sure to cause trouble for as the covering gets damp from the Fall rains, it is packed down and not infrequently we have warm spells as late as the middle of November which will heat up these coverings sufficiently to start the rot in the hearts of the protected plants. For this reason it is dangerous to cover them early. An excellent plan is to spread a good handful of coal ashes over the crowns of these plants, which helps to absorb the moisture and acts as a splendid preventive of rot. Where plants are wintered in cold frames and simply covered with dry leaves after the soil is hard frozen and sashes placed over them, there is the same danger of plants damping off, due to insufficient ventilation as Winter is passing. It is also a good plan to lay some fine coal ashes over each crown; the long leaves on the foxgloves should also be cut well back.

* * *

The terrible disaster in Japan is bound to make the supply of certain lilies smaller for the coming season. The bulbs of *L. longiflorum giganteum*, which ordinarily arrive in America in October, will be much delayed and are unlikely to come to hand before the middle of December or even later. However, as Easter is unusually late next year it should still be possible to force these into flower in time. More reliance is likely to be placed on other varieties of lilies during the coming season. *L. candidum* is only grown in moderate numbers; in large pots it is immeasurably the superior of any other white lilies for Easter. It will only stand moderate forcing, however. Quite a number of growers will try out the beautiful *L. regale*. It is easily possible to bring it into flower for a late season. No doubt if placed in cold storage after digging for a few weeks it will force much better. Some of the growers who have been very successful in flowering *Freesias* for Christmas have found that they start to grow much more quickly and evenly if given a few weeks in cold storage and the same should prove true with *Liliums*. The number of *L. formosum* is going to be very much smaller than normal but from Bermuda the stock of

(Continued on page 256)

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

WE have again arrived at late October and early November. This season, aside from the practical, which at all seasons has the interest of the plant lover and gardener, attracts the eye of the artist and the inspiration of the poet. Autumn landscapes are familiar in all representative collections of paintings and how often we gardeners have longed for the artist's gift, when in our wanderings round the estate we have come suddenly on some scene which would make a fit subject for a painting. At least we think so, but these gifted mortals of the brush might differ with us. However, they cannot deprive us of our picture, which they probably do not see as we see it. The gift of drawing is of great value to the gardener, and we have known a few excellent gardeners that had no mean gift in that line.

Although I cannot do anything in that direction, neither am I an expert at spelling, I think I can get a glimpse of the viewpoint of that wonderful practical thinker on domestic and world educational affairs, Dr. Eliot of Harvard University, when he expressed himself something like this—that he would rather be one who could paint well than be an expert at spelling.

The poets also have given us word pictures of October. No, I shall not quote Shakespeare, but leave that for Friend Craig. Take this from a New York City poet:

A birdnote sounding here and there
A bloom, where leaves are brown and sober,
Warm noons and nights with frosty air
And loaded wagons say—October.
—Thomas Stevens Collier.

Or again from Massachusetts:

We crown thee with gold, Queen October,
We clothe thee with purple today;
But we leave King November the ermine
To wear with his garments of grey.

Maples, brave knights of thy kingdom,
The oak trees, thy counsellors strong
Are gracefully spreading their mantles
For the queen they waited so long.
—Mrs. Abbie Frances (Fiske) Judd.

Some one may properly ask what has poetry to do with practical gardening? Well, in studying the root meaning of the word poet in some of the ancient languages, I find that the word sometimes used for the production of flowers and fruit comes from the same root; also to use a little sentiment, is not a garden "one lovely song?" I am not a poet—sometimes I wish I could rhyme—but being a plain everyday gardener I shall return to our work.

In the garden, as soon as frost cuts down any of the annual or bedding plants, or disfigures them so that they become unsightly, consign them to the compost heap. The tops of the herbaceous plants are about as good a Winter covering for these borders as we could wish for. Moreover, are they not Nature's covering? If moving, or renovating any of the plants by reducing the size of the clumps is contemplated, the stems may

be laid aside in some convenient corner until the ground freezes enough, so that with this covering the border may remain frozen all Winter. Experience has proved that alternate freezing and thawing is injurious to plants during the Winter. It is far better for the herbaceous borders that they be kept in a continuous frozen condition until Spring. Any work that is going on among these plants should be finished as quickly as possible. Get any replantings of bulbs between the clumps done right away or at least as soon as the bulbs arrive.

Lilies should be planted not less than seven inches deep. We like to dust flowers of sulphur in among the scales of the bulbs before covering the bulbs with peat for about two inches deep, having the same under them, and then covering with the ordinary border loam.

Tulips and Narcissi should be planted about six inches deep, that depth is also correct for Hyacinths. If the bulbs are of first quality and free from disease, they should last in the borders without being disturbed for at least three years. We have had them do well for five years without being lifted, but after three years it is generally best to lift them and only to replant with the best bulbs.

Small clumps of Grape Hyacinths, Crocuses, Scillas and Snowdrops may be planted three to five inches deep near the edge of the borders. They are the first or among the first flowers to greet us in Spring, and who has not been thrilled when the first flower is found open?

Fine Fall displays may be enjoyed with the early flowering Chrysanthemums, if one has the time and material to afford them protection at night. Unfortunately, as I pointed out in last month's notes, inland from the seashore, many of us are located in early and late frost belts, which do not prove favorable to these beautiful Fall flowering plants, especially if, as last year, they were accompanied by a blasting wind.

In the formal garden, as soon as the Summer bedding plants have been cleared away, the beds may be dug over and planted with bulbs. In my opinion these formal bulb gardens are too often overcrowded. The blaze of color becomes tiresome. I think it would be far better to have a groundwork of pansies or forget-me-nots and two sets of bulbs of the same color, if at all possible. Early flowering Tulips and late Darwins or Breeders could be planted in the same bed, alternate rows of each, or perhaps better still, an early flowering bulb and a late Darwin bulb. One set would be out of flower about the time the other would come in, extending the season considerably when these deservedly popular flowers may be enjoyed.

There is no doubt in my mind, that the ideal place for growing and enjoying all the Spring flowering bulbs is on the edge of woodlands, where the grass grows naturally and perchance some brook meanders its way through the plantation. Some of us have seen and enjoyed many such places "in the happy days gone by" and we are still full of hope that we shall yet see many of these beautiful natural Spring scenes.

All the Gladiolus bulbs, except perhaps the last planting, may be lifted and dried in the sun. A sunny slope is the best place to dry them, and in case of rain a few shutters placed over them will help the ripening process. We always put in a plantation of these bulbs

about July 15. We make this the largest planting of the season, the reason being that during the frosty nights which occur during the Fall, many of the tips of the flower spikes are injured. After a frost we very often have a spell of fine weather, and the plants continue flowering. The few that are nipped are not missed very much. We do not lift this late planting until the stems are ruined by frost, neither do we dig up the small bulbets that we sowed in a drill in the Spring until the tops are cut down. As a result we very often have cut fairly good Gladioli in November from both of these plantings. With protection they could stay out all Winter without injury.

Dahlias, as soon as they are blackened by frost, may be cut down and dried. Tie the labels to the bulbs with copper wire for there is less danger of losing them. They winter well in a frost-proof cellar.

Cannas need a little warmer place to winter in and a somewhat drier atmosphere. In fact, some of the finest and freest flowering Cannas we have grown need to be kept growing all Winter to make sure of a good stock in the Spring. We have had this experience with some of the finest French varieties.

Any one who is contemplating making a new rose plantation next Spring, ought to have the ground prepared now. While roses will grow well in almost any good garden loam, yet if the best results are desired they should be as well treated as any bench of roses indoors. This necessitates good drainage, the best of good sod loam, preferably inclining to clay, and a good mixture of the usual rose manures. The rose plants should be secured now. They can be kept by covering them over with loam outdoors and will be right at hand in Spring. These plants will be in a far better condition to plant than much of the stock one is likely to buy in Spring. I know that Fall planting of roses is advocated by many good growers, but that question, like many others, is debatable.

Montbretias need protection during the Winter. Though they can be lifted and stored in a cellar where atmospheric conditions are about right, yet the best place for them is in the soil. Cover them well with leaves and if drainage is good they will winter alright. They may be grown in the same ground two or three years without lifting.

Secure a few roots of the choicer herbaceous plants or any that stock is short of. During Winter they may be propagated if kept in a growing condition.

There will be a great deal of work keeping leaves cleaned up about this time. We find that for potting purposes oak and beech leaves are the best and we try to keep them separate from the others as far as possible. Keep the grass mowed until a good stiff frost stops it from growing, which makes it easier to rake the leaves off the lawn, and in my experience it does the grass no harm, although others think otherwise and allow it to grow quite long.

There is still plenty of work in the vegetable garden. Some crops are yet to be harvested, which should be done now as quickly as possible. The ground should be dug or ploughed before severe frost sets in. Any weeds that have not been taken care of are covered up and will be decayed before next Spring. Trenching of land is now almost prohibitive on account of the cost and scarcity of labor. Late vegetable rubbish may be decomposed in a heap under cover if possible, adding some acid phosphate. It will be easier ploughed under in the Spring. Anything in the way of decayed vegetable matter is now worth saving as organic manures are becoming more scarce every year.

Cauliflower, with us, has been of far better quality this year than for several years past. During the war,

seed selection evidently received very little attention, resulting in heads of poor quality. If not all used up before severe frost, they may be heeled in in a deep frame. Water the roots well, but keep the tops dry by airing them well during the day; very little loss will result until they are used up.

Late lettuce and endive does not pay to be lifted from outdoors, a covering of straw or salt hay will take care of them until they are used up. Heads that have developed late in a cold frame if properly aired will last well through the Winter.

Have a good supply of beets, chicory and Ruta Baga turnips stored in a cool cellar. All these, when forced in a mushroom house temperature make excellent salads during the Winter.

Do not neglect the asparagus plantation after the tops are cut. If it is on a fairly level piece of ground give it a heavy manuring and dig it in, for it will not leach out. But if it is on a slope, it is better to wait until Spring. Burn the tops, as borers are likely to be in them.

Rhubarb and seakale may be lifted and stored before the ground gets too hard, that is, if forcing of such plants is practiced. But always remember that the size of the family to be supplied has to be considered, together with time and facilities.

IN THE GREENHOUSE

In the greenhouse the chief attraction for some time will be the Chrysanthemums, but do not become so enthusiastic over them as to neglect other things. A great many details attended to now will determine how steady a supply of plants and flowers the greenhouse will produce during the Winter. The tendency these days is to specialize, which may be alright for a florist, but never for a private gardener. The better acquainted a gardener is with a great variety of plants and their cultural requirements, the chances are that he will give more pleasure to the owner. People get just as tired looking at a few genera of plants as they do with food, if it is not supplied in variety.

The worst pest, after Chrysanthemums are opening their flowers, is red spider, especially if the greenhouses are near trees that are affected. On a hot day, with quite a breeze blowing and ventilators all open, in they come. Very little can be done with a case of this kind, as syringing will be sure to hurt the petals. Keep them thoroughly clean until they show color. Look out for the ventilator on the windy side and keep it closed. Do all watering in the early part of the day as an excess of moisture is also bad for opening flowers. Withhold food as soon as the petals begin to unfold, as by this time there will be sufficient in the pots to carry them through to completion. Take note of all undesirable varieties while they are in flower. Attend the exhibitions and form your own opinions about the newer ones as far as one can determine by observation.

Have a good stock in small pots of the usual annuals that are used for forcing. There are quite a number of good things as yet untried to any extent here for Winter forcing, which do well in a temperature around 50 degrees in our clear Winter sunshine. The heat outdoors in Summer is too much for them, but they thrive well in the Chrysanthemum house, giving variety for cut flowers, aside from the usual standbys such as carnations and roses.

Cool hardwood plants from now on need to be more carefully watered, and if possible, rain water should be used for them. I have urged the use of rain water before in greenhouse watering, as its use cannot be emphasized too strongly. Anyone who has not used

it would be astonished how it simplifies the culture of plants indoors.

The larger and more vigorous growing cyclamen plants may yet receive another shift. They may be brought along slowly in a cool house, keeping them away from draughts. They will be very serviceable in March and may prove an attraction at some exhibition in that month. Fumigation of these plants must never be neglected, and if the usual precautions are observed, hydro-cyanic acid gas is the most effective. Again I would draw attention to the valuable little booklet which the Roessler & Hasslacher Chemical Co. will supply free from their office, 100 William St., New York City. It gives the simplest and easiest advice to follow about how to use this gas in greenhouses that I have so far seen. They have specially prepared sodium cyanide in egg shape, weighing one ounce, which is most convenient to use. I consider they have done the greenhouse men a great service by getting it up in this convenient form. It is now time to begin using hydro-cyanic gas in light doses on all plants that are not injured by it. It is the best thing so far we have found for mealy bug, scale and white fly. If done regularly and with care it keeps these insects in check. We never use it in the hot months of June, July and August, and generally by this time of the year these insect pests put in their appearance.

Carnations that were benched in the end of June will now be throwing up good flower stems. The bench will be well filled with roots and an application of plant food will help them. They respond to Clay's fertilizer, decayed horse droppings and light applications of tankage.

Fuchsias that were rooted about the first of August ought to be in five-inch pots early in November, that is, if large plants are desired by the end of May next year. They may be trained in different ways but we prefer the pyramid form.

Any plants that are to be grown into large specimens should receive a shift before they get too well rooted. As soon as the roots put in appearance all around the ball, it is time to shift them. This is especially true of cool soft wooded plants such as herbaceous Calceolarias and the so-called shrubby type.

Well matured leaves of Begonias may now be placed in the propagating bed. We have had the best success by potting them in small pots in sphagnum moss, sifted fine. It is better not to insert the leaf stem too deeply in the pot. To steady it, use a thin peg about the thickness of a toothpick and a little longer. Pushed through the leaf and firmed in the small pot, it will keep it from tipping over. About 80 degrees bottom heat should be maintained until roots are formed. All Begonias will root from leaves and generally will make better plants than those rooted from cuttings.

The Fall flowering Cattleyas will now be in bloom. We like to keep the varieties, Bowringiana and labiata, close to 60 degrees at night until they finish flowering. Cattleya labiata is susceptible to losing its leaves after cutting the flower, if it is not given a clean cut and the cut made in such a manner that moisture does not lie at the apex of the leaf. Keep the plants quite dry for a little while after cutting the flowers.

By this time the late grapes will be ripe and plenty of air and a dry atmosphere must be maintained to keep the fruit. We believe that a better flavor is maintained in the berries by leaving the bunches on vines than preserving them in bottles in a fruit room. If kept cool and airy they will generally keep as long as desirable. Keep up fumigating with hydrocyanic

gas from now until they show signs of starting in the Spring. We do it on the vines every two weeks and any mealy bug that may have come in from outside will be killed before they start growing next season. Store the pot strawberry plants after they have been frozen a little in a cold frame, from which they can be forced in batches after the turn of the year.

GLORY OF THE SNOW (CHIONODOXAS)

THE several varieties of Chionodoxas or, as they are popularly known, Glory of the Snow, are, when taken together, a small group of charming early Spring blooming bulbs, blooming with the earliest warm days of Spring and producing their showy and attractive blue flowers in the greatest profusion in dense clusters, on stems that arise from clusters or clumps of grass-like foliage to a height of five or six inches, writes Charles E. Parnell in the *Flower Grower*. All are natives of Asia Minor, so are perfectly hardy in the vicinity of New York, with a slight covering of some sparse littery material during the Winter months, or from December to March. They can be used to good advantage when grown in groups, in the rockery, or front rows of mixed flower beds or borders, where they will be found to be very attractive during the late days of March or early days of April; the precise time depending entirely upon the season and situation in which the plants are grown.

The bulbs do best when planted during the month of October in a well-drained, deep, moderately enriched soil; placing them in groups of about a dozen bulbs, keeping the bulbs about two inches apart, and covering them to the depth of about two inches. They will require but little attention after being planted until the bulbs commence to crowd each other, when it will be necessary to replant.

Of the several varieties *C. gigantea* is the most robust as it attains a height of about nine inches, and the large lilac-blue flowers have a pure white center and are borne in very dense clusters. *C. Luciliæ* has deep blue flowers, each petal being veined with white. The flowers of *C. Sardensis* are of a deep blue throughout.

The late J. L. Childs in "Popular Bulbs and Their Culture," in speaking of the Chionodoxa says:

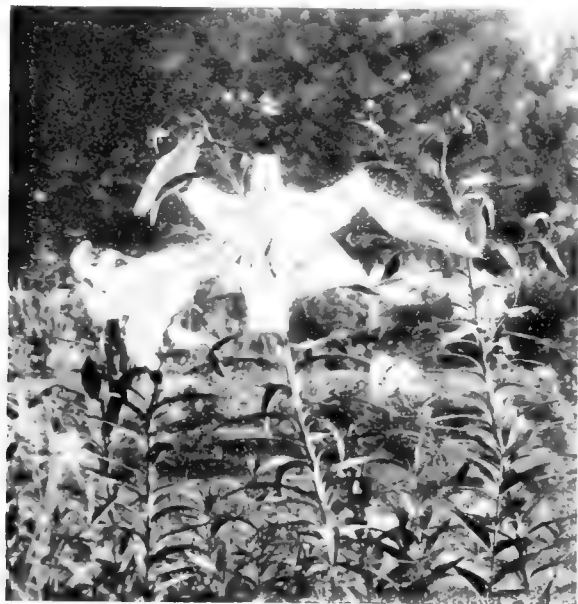
"Its name means Glory of the Snow, and is derived from the fact that the bulbs bloom among snow and ice very early in the Spring. It is a native of Asia Minor and resembles a Scilla to some extent though much more beautiful. The flowers are borne on graceful spikes and are about an inch across, intense blue shading to white in the center. For a mass in the garden, for early Spring flowering, nothing can be more lovely, and as it is perfectly hardy in any location it should be extensively planted. For Winter blooming in pots it is magnificent, but will not stand forcing in heat. It must be grown slowly in a cool atmosphere to bring it to perfection. None will miss it by planting this little gem extensively both for pot and garden culture."

Progress in the sense of acquisition is something; but progress in the sense of being is a great deal more. To grow higher, deeper, wider, as the years go on; to conquer difficulties, and acquire more and more power; to feel all one's faculties unfolding, and truth descending into the soul,—this makes life worth living.—*J. F. Clarke.*

Lilies for Every Garden

HELEN M. FOX

THE lily is always conspicuous and lends a stately beauty to any scene it graces. What other flower shows as much variety of form, foliage and color? Can the loveliness of the jewel-like flowers of our native superbum be surpassed, with their perianths of red, green and orange swinging like gayly colored bells from their tall stalks; or the open spreading, white auratums, with a pale, golden band marking the center of each segment, their stems swaying and bending under the weight of the heavy flowers,



Lilium auratum

so fragrant that the perfume spreads over the garden, and through the windows into the house at night; or the humboldtii, a Californian, like orange birds with spotted breasts, their perianth segments rolled back to the stem, their pistils and stamens curving outwards, making them appear in flight across a green meadow; or again the philadelphicum, like a ruby colored grail holding its cup to the skies. The color combinations in any one flower can serve as a model for artists, where emerald green, rosy pink and white are used as in speciosums, or greenish brown, gold, purple and white as in regales. Nature, the master artist, is at her best here and the color harmonies are worked out to the minutest detail, even to the varying shades of the pollen. From gradations of brown, orange, gold, black, purple and red, the one is chosen which tones in best with the other colors.

All this beauty can be yours, as lilies are easy to grow. Most people have the fallacious impression that they are delicate and finicky because, in the past, we Americans have taken our garden lore principally from the English. When they found their damp, sunless climate unsuited to them, we thought the same must apply to us. Most lilies like hot Summers with plenty of sunshine and a dry period to rest in after blooming. In general it is best for the people living on the West coast of the United States to grow the European kinds and for those on the East coast to grow the Chinese and Japanese, and for all to cultivate whatever species is indigenous to their region.

With so many beautiful native lilies, how foolish it is not to make full use of this convenient material ready for us to paint our gardens with. Canadense and philadelphicum lilies grow wild in the meadows of my own farm and transplanted to the garden they grow taller and stronger and are the June sensation, with their yellow and orange perianths with white candidums, blue delphiniums and purple Japanese irises.

The longer one gardens the more one realizes that certain plants do wonderfully well on the hill, while they are a failure in the valley. Sometimes on one side of a stream a plant will flourish that will languish on the other bank. To have success with lilies try out many kinds and then specialize with the ones that thrive on your place.

Fine lilies come only from good stock. Beware of the cold storage bulb. Buy medium sized bulbs in



Lilium regale

preference to the largest which are forced to increase their bulk, weight and price, but lose in vigor and are more subject to disease. The shorter the time they are out of the ground the better, as they must not dry out. If possible buy from the grower. Sometimes this cannot be done, as he may not have the rare varieties. If they come from a distance and arrive after the ground is frozen, plant the bulbs in boxes and winter in the cold frame. When the shoots come up in the Spring, transplant to their permanent place. Before planting examine the bulb carefully to see if there are any slimy scales. These are caused by a disease called Rhizopus necans. Bulbs badly affected with this have an unpleasant odor. Dust the bulbs with sulphur before planting to prevent this. There is another lily disease called Botrytis cinerea which shows itself by yellow spots on the leaves. Plants having either of these diseases should be destroyed.

Once the bulb has arrived and is healthy, the best

way to plant it is to dig a hole three inches deeper than needed and fill in to the required depth with sand; then place the bulb sideways on this and cover to the top with more sand. A layer of sphagnum moss under the bulb is good. The principal thing is to have good drainage and to see that no manure touches the bulbs. The lilies that root only from the bulb do not need to be planted as deeply as those that root from the stem too. The deepest planting should be about eight inches from the top of the bulb to the surface as for *tigrinum*, *canadense*, or *henryi*, while the top of *candidum* should be only one inch below the surface. Never plant closer than a foot apart; spacing depends on the size of the bulb. After the plants are established it is well not to move them.



Lilium canadense

Some of them will form clumps in time and can then be divided. The question whether lilies can stand lime in the soil or not has been much discussed. Many lime-hating varieties thrive in my perennial border where the presumably insidious material is spread quite thickly every Spring. I have, however, no bog lilies. To winter out of doors they are mulched like any other perennials with leaves or straw held down by pine boughs or corn stalks.

Lilies can be propagated by division, offsets, bulbils and seeds. Little has been done in hybridizing them, and here are untried fields for the pioneer. The shape of the flower lends itself easily to crossing. When the pistil is receptive, it is covered with a sticky substance. The seed pod turns upwards after the perianth has fallen off when the pollination has been successful. Most lilies have to be hand pollinated; I have gathered seeds from *tenuifolium*, *candidum*, *regale*, *canadense* and *superbum*. The seeds are planted in boxes with one-third sand and two-thirds leaf mould and put in a cold frame in partial shade and kept moist. In Winter they are protected with a mulch of leaves, and the second Spring they are transplanted. Some will bloom the second Summer and all the third after planting. It seems a long time to wait, but gardening requires patience. Nature deserves our gratitude for making her own pace, and

no nervous effort of man can change her majestic, tempered intervals.

The lily procession in my garden is led by *elegans* the second week in June, with *henryi* bringing up the rear as late as September 15. There are usually three kinds in bloom at one time and the end of June and beginning of July there have been as many as eight varieties flowering simultaneously.

All of the following list do well in the middle Atlantic States:

L. auratum (golden banded lily of Japan) needs renewing every few years if planted in rich soils; white spotted red with gold bands, fragrant, semi-shade, stem rooting late July, August.

L. brownii (Brown's lily), cream, brown outside, fragrant, early July, bulb roots.

L. candidum (Madonna), white, fragrant, bulb roots, late June, July. Needs renewing with me.

L. canadense (Meadow Lily), yellow, rhizomatous roots and stem roots, late June, July.

L. croceum (Orange Lily), bright orange, stem rooting, late June, July.

L. elegans (Thunberg's Lily), orange red, stem rooting, June.

L. hansonii (Golden Turk's Cap Lily), bright yellow semi-shade, stem roots, late June.

L. henryi (Henry's Lily), orange, stem roots, August.

L. humboldtii (Humboldt's Lily), orange, semi-rhizomatous, July.

L. grayi (Asa Gray's Lily), red and yellow spotted brown, rhizomatous, late June, July.

L. martagon (Martagon Lily), var. *album*, white, small flowers, stem rooting.

L. philadelphicum (Wood Lily), some stem roots, red, June, July, bulb rooting.

L. regale (Regal Lily), fragrant, white golden throat, stem roots, July to early August.

L. speciosum (Lance-leaved Lily), fragrant, rosy or white with green heart, rhizomatous roots, late August, September. Do not plant too deep.

L. superbum (American Turk's Cap Lily), red and orange, very tall, late July, August, some stem roots, rhizomatous.

L. testaceum (Nankeen Lily), pale creamy buff, late June, July, bulb like *candidum*.

L. tigrinum (Tiger Lily), stem roots, August, September, pinkish orange.

L. tenuifolium (Siberian Coral Lily), dwarf orange, needs renewing every few years, no stem roots, June, early July.

When only a few lilies can be grown, I would suggest: *regale*, *canadense*, *superbum*, *henryi*, *speciosum*, *tigrinum*. A secondary list has *croceum*, *tenuifolium*, *auratum*, *candidum*, *humboldtii*. One cannot make a mistake by choosing any of these for appearance and reliability.

If one has the requisite space to indulge one's fancies to the fullest, lilies are at their best planted amongst low growing evergreens with higher evergreens behind them. Some shade-loving kinds are good planted at the edge of a woodland. In the border they should be placed against the wall of the house or garden, in some wind-sheltered locality, so that they do not have to be staked. They look well under pergolas, on the sides of steps or in any part one wishes to emphasize. In the border there are many effective ways of using them. The early low-growing *tenuifolium* and *elegans* planted with blue *Campanula persicifolia* make a pleasing picture. The *tigrinums* are used so much that we tire of them, like

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Notes From an Old Country Garden

ARTHUR T. JOHNSON, F. R. H. S.

DURING the last few years we, in this country, have been paying closer attention than we used to do to those berry-bearing shrubs which give such a fine Autumnal and Winter display of brilliant colors, and among them few have become so popular as the barberries. The genus *Berberis* is, however, such an enormous one and cultivated kinds are so numerous—to say nothing of the confusion that still exists over their nomenclature—that one can not do more here than mention a few of the most noteworthy.

A first favorite with us is *B. Wilsonæ*, which was brought from W. China in 1904 by E. H. Wilson. It is an exceedingly elegant little shrub of some three feet in height, and its pretty yellow flowers are followed in the Fall by an abundant crop of large fruits of a clear, almost translucent, coral-red, tinted with salmon. The foliage at the same time assumes gay tints so that the little bush becomes a most striking feature of the Autumnal garden or woodland. With berries of much the same color is *B. Pratti*, a considerably taller shrub, and another excellent one of the same class is *B. corvii*.

Our native barberry, *B. vulgaris*, which, I believe, is naturalized in parts of North America, is a species of no little merit as an early berrying shrub, and the clusters of brilliant scarlet fruits, which are seldom eaten by birds owing to their acidity, will often remain on the branches from September to March. The variety *purpurea*, with plum-colored leaves, is a decided acquisition to the species. Another early barberry, and one that is as much appreciated in some of the Eastern States as it is here for its hardiness and brilliant tints and berries at this season, is *B. thunbergi*. This is one of the old and well-tried members of the genus, and another excellent species is *B. aristata* which grows a good deal taller and whose grape-like bunches of berries are a dull red covered with a bluish-white bloom.

Like the barberries, most of the cotoneasters hail from China or the Himalayas and the majority of them are perfectly hardy here. From the lowliest creeping species to those which attain the stature of a tree, this genus affords several species which are surprisingly beautiful when adorned with their crop of Autumnal fruit. One of the handsomest is still, I think, the old *C. horizontalis*, especially when it is allowed to grow naturally in bush form rather than attached to a wall; and its variety *perpusilla*, whose fishbone branches are held on an horizontal plane instead of tilted, is equally good. One of these splendid shrubs, laden with its burden of large round berries, which glow with rich shades of orange to deepest crimson, is a most arresting sight and one that is rendered still more gorgeous by the bronze and wine-colored hues of the foliage which precede the leaf-fall.

Another first-rate cotoneaster is *C. bullata* (*moupinensis*) which produces ample bunches of crimson fruits as large as small cherries. Nor can one overlook the merits of *C. houpehensis* which, unlike the rest of its tribe, can make some claim for beauty as a flowering as well as a berrying shrub. *C. pannosa* is a species of marked distinction, the only member of the genus, which is something like it being *C. Francheti*. But the former, a bush of some eight to ten feet in height, is much the more graceful, its long, whippy

branches clothed with their silky, evergreen leaves being surpassingly elegant. The crimson berries of *C. pannosa* do not ripen here until November, but they remain long on the branches and, though individually small, they are borne in such bountiful clusters that a well-laden specimen is a most gorgeous spectacle. Other good and well-tried species are the familiar *C. simondsii*, *C. applanata* (*dielsiana*) and the tall, tree-like *C. frigida* with large bunches of fruits like those of our mountain ash (*Pyrus aucuparia*). Of the creeping cotoneasters which are most reliable in fruiting freely with us, and which are of such inestimable value in the rock-garden, are *C. adpressa*, a deciduous species, and the evergreens *C. congesta*, *microphylla* and the entirely prostrate *C. humifusa* (*Dammeri* var. *radicans*).

There are not many gardens of any size over here where some representatives of the Sumachs (*Rhus*) are not grown for the beauty of their foliage in the Fall. The commonest is perhaps the Venetian Sumach (*Rhus cotinus*) of which there is an attractive variety which is purple in leaf, young wood and flower. But a choicer plant, to my mind, than *R. cotinus* is *R. copallina*, well-known to all tree-lovers of its native home, the Eastern United States. Here this pretty shrub does not grow more than about four feet high, but its leaves color well before they fall and the bright-red fruits of the female tree are highly decorative. Another most desirable dwarf American Sumach which we value very highly, both for the elegance of its Summer foliage and the fine tints which it assumes at this season, is the variety *laciniata* of *R. glabra*. The long, broad, "feathered" leaves of this sumach produced on well-grown specimens cut hard back in Spring are remarkably handsome.

Very charming beneath the tall oaks of our woodland garden and about the lawns and rock-garden are the colchicums, or Autumn crocuses, of which *C. speciosum* is still one of the best. But grown in bulk with a carpeting of natural herbage the old *C. autumnale* in various shades of rosy-lilac is very effective. Of both of these there is a pure white form which is very lovely. Contemporary with these are those hardy cyclamens, such as *C. neapolitanum*, the Ivy-leaved Cyclamen, and *C. Europæum* which will usually be in flower from September, or earlier, to the end of October. The former blooms before the leaves and its dainty, rose-pink blossoms, rising in little colonies among the ferns and grass of our woodland floor, are perhaps the most fascinating of all autumnal flowers. Then when they have died down and are busy converting their seed stems into those curious spiral springs which so cunningly ensure the dissemination of the seed, the foliage appears. And this leafage, so attractive in design and so beautifully mottled and margined with a silvery sheen, will be one of the most delightful objects of the garden throughout the wintry months.

One of the gayest masses of color in the borders just now, if we except the asters, is that of some large groups of *Sedum* spectabile. This noble old stoncrop is not perhaps what one would call a good color—not even in the forms with flowers of a richer tint than the type. But its foaming heads of blossom, which are just the color of a raspberry-ice, are wel-

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Fireside Gardening

HENRY J. ECKSTEIN

MY title may impress the practical gardener as paradoxical, if not indeed entirely ridiculous.

And yet, in any activity there must exist, underneath the reality, the realm of imaginative thought. Although gardening may appear to be confined to simple actuality, this is none the less true. When the gardener has laid aside his tools, crops and seeds, he must perforce take time for the planning of the approaching season's work, and at that time the opportunity, in fact the need, for the employment of imagination and vision presents itself.

Somewhere along in February or March, preferably as early as January, the gardener naturally turns toward the preparation for the coming garden year. When Nature commences to display its new life, with the swelling of buds and the rising of the sap, he also feels a new life rising in him, increasing as Spring approaches. In April he is at full blast; as interest grows, new hopes, new ideas, and greater efforts crowd on him, as if he did not know of the discouragements and obstacles lying in wait—blights, diseases, droughts and accidents. Flushed with the success of the first blooms, he rushes on madly, flaunting his joys and garden beauties, tilting away quite untouched by coming adversities. When these are first encountered in mid-Summer, he struggles bravely to defy them. But toward the end, when the last plantings have been made and nothing remains to be done but cultivation, his enthusiasm is likely to wane. I often think that August brings the gardener's severest trials. Not only does the dry heat naturally make energetic effort difficult for the gardener, but it sorely tries the garden itself as well. Routine work and discouragements that are often overwhelming affect his interest and endurance.

This thought is very quaintly expressed by Maund in his *Botanic Garden*. "Mid-Summer, or the Summer solstice, presents itself to the contemplative man as that point of time which, like the prime of life, may be called the pivot of our expectations, on which anxieties change their balance. With what desires, hopes and anticipations each vernal ray inspires the zealous botanist, just as buoyant spirits excite the youthful mind. Pleasurable prospects still continue to arise till that fated day—the longest of the year, to which we have just alluded, like the strongest of man's life—when no longer does each succeeding day outstretch its predecessor in length or strength, but a shadowy reverse commences, when the season of brilliancy has risen to its zenith, or man to the perfection of his nature, then, and not till then, arrives a full reflection on declining days. If, however, the cultivator of a flower garden, or the years of human life, has indulged due thought of a future season, if his young plants be well trained, his whole garden in good culture, and he has made preparation to meet the icy hand of a Winter fast approaching, all is well; he fears not present nor future storms, all seasons alike afford him pleasure."

But the true gardener goes through to the end, eager to commence anew, engrossed in new ideas. He reaches this phase in the early Autumn, facing the long Winter without any opportunity for actual endeavor, other than the making of plans.

This appears to me as the seasonal adaptation of the gardener to his work and the laws of his material.

It is the psychological explanation of what I like to call "Fireside Gardening."

But it does not by any means comprehend all of it. At the fireside we can build our dream gardens where everything grows easily and profusely, free from all adversity or misadventure. Surrounded by books and catalogs, working among memories and fond visions, the gardener builds a garden which in every way expresses and fulfills his ideals. There are no weeds, no pests, no failures, just succession after succession of perfect flowers, enfolding each in their precise turn, taking with the utmost regularity and dependability their place in the harmonious scheme of his picture garden. As he sits by the fire and sees lovely white lilies, gracefully opening against gigantic staffs of delphinium, the mice are not unlikely feeding on the bulbs under the snow, but he knows it not. Or the frost is killing the roots of some other tender treasure, while he is so confidently counting on these same plants as vital to his next year's achievement.

He reads in the books of the greatest of all gardeners, the English, of this or that fine thing which he has never grown, and it seems the easiest thing in the world to grow. Indeed it is rather a poor gardener who does not straightaway drop the books and order seed or plant. Is there anything more delightful or simple than to follow the precepts of Mrs. Jekyll, as she so facilely describes those perfect, harmonious gardens of hers, where, month by month, new vistas unfold in the subtlest of color schemes, magnificently blended in the greatest of profusion?

Or as he pores over catalogs his list lengthens beyond his capacity, as he is enticed by the occasionally misleading descriptions. The results of all experience are forgotten and cast to the winds as he capitulates before the allurements of seedsmen, who are ever ready with their "of easiest culture," "no garden is complete without this rare gem," "altogether a charming variety," "easily raised and blooming continuously," and what not. One is often tempted to think that seedsmen must have a dictionary exclusively their own where "continuous" and "easy" have different meanings than the common ones, or else meanings obsolete to all but seedsmen and most assuredly foreign to the practical gardener. Or are the seedsmen only more imaginative and visionary than the gardener?

With equal facility and joy the Alpine enthusiast follows Reginald Farrer into Japan or Thibet, or over the sterner Rockies. Or else he passes "A Collecting Day Above Arolla" with him and is amazed at the ease with which he brings the treasures there culled into his own gardens. Mr. Farrer is the most human, the most graceful and poetic of all writers on gardens, in my mind. He has so delightful a sense of humor, so engaging a personality, that in reading him it becomes no difficulty whatsoever to grow almost two hundred *Saxifraga*, or to find the right soil and place for such elusive plants as *Androsace*, *Gentiana* or *Ramodia*. The frailest, the most sensitive and "miffiest" of Alpines seem to bloom for Mr. Farrer in his garden, and his descriptions of them are so fascinating, his modesty makes his success so much a matter of fact, that we cannot read him without immediately growing these same things ourselves.

Yes! growing them—in our fireside gardens. And

if you say: "Ah! but not elsewhere!" I must ask: "Is it absolutely essential that we actually do grow them elsewhere?" I do not contend that we can long be satisfied by merely picturing these things in our gardens, but I do feel that the spirit of the real gardener should admit occasionally reading of these things, and playing with them in his mind, and not actually growing them. By all means let him try. But is it so serious if he fail? There is pleasure in the defeated attempt, especially if one is gardener enough to try again.

I have tried hundreds of things under adverse conditions, and failed many times. But that does not daunt me. For such efforts are the essence of the art. The gardener often gets a greater thrill from a single success with a rare or difficult plant, which may only have produced a single bloom, than from all the rest of the garden. This appears to be the true spirit of gardening. And if we go on simply planting phlox, verbena, pansies, etc., no matter how fine individually they may be, are we not missing a great deal of the real joy that the garden offers? We need not forego our successes "en masse" to have these single triumphs, but it often seems it would be worth while to do so, if it were necessary.

Such efforts, repeated again and again if need be, despite mishaps or errors, are but too few among our American gardeners. We are all apt to confine ourselves to the easiest and most commonplace in our desire to succeed and create display. I grant that in our gardens and exhibitions we must have bloom, in quantity and quality, but must our trial beds and nurseries be so completely ignored? The creation of a novelty that is worth while is, and should be, the height of achievement in gardening. It is a rare art and a difficult thing to do. But we should find some place to record at least efforts that do not so signally succeed.

It is of great value to keep on trying the new, the difficult, even the apparently impossible. But it is discouraging so to do, if we have no opportunities to exchange and bring to notice the disappointments as well as the achievements, whether these be in the direction of the creation of new varieties, or the attempt to grow varieties not previously established in our native gardens.

We need more "Fireside Gardens" if we would improve our outdoor gardens, in diversity or form. It is comparatively easy to build a garden, rich and full, colorful and luxuriant, if we use the tried materials that we know will be effective. But we are not really gardening, in the finer sense.

We have only to compare any American gardening book with an English to see how limited is our scope. If we exclude two or three, we find every nursery and seed house in the Eastern part of the United States offer the same species and varieties, within a variation of about 10 per cent. If we compare these with foreign catalogs, we realize what novices we, after all, really are. Here and there one finds a large estate, superintended by an unusually experienced man, who may specialize more extensively in one thing or another. But to the general run of gardeners, professional or amateur, there are ten things that are a sealed book to one that is known.

The usual reply to this thought is that the things known are those that have been tried and found adaptable to our soils and climate. But there are things not known that should be tried, and with which we have a fair chance of success, and if we have an equal chance of failure need we be deterred?

If we pick up any garden paper we find its columns filled with accounts of successes. The only records of failure are those of readers who, in a hesitant, despondent way, write to the editor for advice, or else they will fling their failure forth, in a tone of abandonment, as if to say: "So there! You see it cannot be done." We need these thwarted efforts and should encourage them. They are the very life of progressive gardening, the hope of future development, the product of research and imagination, the labor of adventurous spirits. The desire to make these attempts does not so much arise in the Summer when we are busily tending our growing gardens, nor in the Spring when we are equally occupied in preparing for that season. They are the outcome of long hours spent indoors, when we have the time to sit by our hearths and study our books and dream of our next year's gardens. The seed of the growth of American gardening should be planted by the fireside.

NOTES FROM AN OLD COUNTRY GARDEN

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came by all the butterflies in the neighborhood, and for that alone they are worth growing. Another late sedum which is less commonly seen and very much more attractive is *S. pulchellum*. This hails from the States of Missouri, Virginia, and others, and it is not only one of the most beautiful of hardy sedums in cultivation in this country but it is in one respect unique among its kind, that is, it prefers a damp and cool rather than a dry soil. *S. pulchellum* grows here with the greatest ease (provided its peculiar taste for dampness is recognized) and its large, claw-like heads of rosy-carmine flowers which crown the sea-green, leafy stems may be counted upon to afford a bright display throughout the Fall.

Though we have comparatively few American sedums in cultivation, one or two among them might be singled out as of outstanding merit. The above-mentioned is one, *S. spathulifolium* (Hooker) is another, and if I may add a third I should mention the blood-red, golden-flowered *S. oreganum* (Gray). It would be difficult to name a trio of higher merit for out-door culture here than these, and some of the newer forms of *S. spathulifolium*, whose large, fleshy, plum-colored rosettes are powdered over with a silvery-grey meal, are in the very front rank. *S. ternatum*, another American species (from the eastern side of the Mississippi, I believe) can doubtless claim no less merit than the above in so far as its flowers are concerned, but it fails in foliage, whereas those mentioned excel in both.

Now that I am on the subject of American plants I am reminded that one of the most fascinating and lovely exhibits shown at the Royal Horticultural Society's fortnightly shows for a long while was a specimen of *Chimaphila maculata*, the Spotted Wintergreen, which well deserved the first-class certificates it won last month. Though this little North American was introduced as a *pyrola* nearly two hundred years ago it is still rare, but its beauty is beyond question. It is a wee evergreen shrublet of a few inches with crisp, dark-green leaves, distinctly veined with white. Just above these are raised the flower stems, each of which bear two or three pendulous blossoms, spotlessly white and looking as if they had been modelled in wax. These are scented like our English "May" (Hawthorn) and a plant in full bloom is irresistibly enchanting.

Covering the Flower Garden for Winter Slumber

FLORUM AMATOR

SOMETIME in November, usually the date depends on the latitude, we put the blankets over our hardy herbaceous flower and rose gardens, and around some of our shrubs, and tuck them in carefully there to remain till taken off gradually early next spring. This covering, which is not only a protection against low temperature, but as well against frequent changes in temperature, and furthermore against the burning Winter wind and sun in some cases, must not be put on prematurely, just because we feel that we should like to get the work over with. Too early a covering may heat and sweat the plants and cause the crowns of herbaceous plants to decay, or even cause the buds of rose bushes and shrubs to swell only to be killed later by severe cold.

The plants should be entirely dormant before they are covered. It is well, however, to have the covering material close at hand, as the inevitable time for its use draws near, but better not to put it over or around the plants till the ground is crusted over with frost to the depth of about an inch; then it should be put on at once while the surface is still frozen. Then the covering of frozen soil and the covering of manure or other material, which we place above the frozen soil, acting together not only prevents frost from entering deeply into the ground and freezing the plants to death, but what is equally important, keeps the plants from being killed by alternate freezings and thawings, which take place in Winter in some sections of our country, the thaw causing the buds to swell and the freeze which follows killing them. In short, there are three main points to keep in view in covering our garden plants: First, to wait till they are dormant, and the ground is frozen a little; second, to cover them promptly, so as to keep them frozen and dormant till Spring; and third, to cover the less hardy plants heavily enough, so they may not be frozen to death, but the hardier plants more lightly.

The fact is, many of our herbaceous perennials which are generally classed as hardy, live through the Winter only under the protection of a more or less heavy Winter covering. Not a few, on the other hand, though benefited by a light covering, will live through the Winter without it. To this class belong such plants as the Peony, Achillea, Ægopodium, Aquilegia, Asclepias, Bocconia, Boltonia, Chelone, Dielytra, Dictamnus, Hosta, German Iris, Gypsophila, Monarda, Valeriana, Liliun Candidum, and the hardy Japanese Lilies, and Lily of the Valley.

The true way is to study our hardy herbaceous plants' needs as regards a Winter covering. If we find certain plants winter better under a very thin covering, that is, if they awake from their Winter sleep in a healthier and more robust condition when covered thinly, then we should so cover them each Winter. If we see that other plants come out in Spring from under a mediumly thick protection satisfactorily, that, then, is the proper Winter treatment for them. Again, if certain plants barely survive the Winter under an extremely heavy covering, we should see that each Autumn they have that. Then observations recorded in our note book under the head of: "Winter Covering of Plants" would give us the exact information for which we search garden books in vain. We should not trust these valuable observations to our memory, for we, the observers, may forget them. It is easy

enough to say in a garden book or magazine: "When the ground is frozen an inch or two deep, cover your hardy plants with six to eight inches of coarse manure or leaves and above them lay boughs of evergreen shrubs." In general this is a proper method, such a covering will no doubt be beneficial to the most tender of the so-called hardy perennials, but it may smother others, which perhaps need no covering at all, causing their crowns to decay.

Instead of dumping the covering over our hardy perennials, no matter whether they require a thick or thin protection, it is better by far to place as thick a covering as the plant requires over the entire surface of the ground between the plants and very close up to and around the plants themselves, but a thinner covering of lighter material directly on top of the plant. This method of covering keeps the ground around the plant from alternate freezing and thawing, and the frost from penetrating the ground so deeply as to freeze the least hardy plants to death, but allows the crown of the plant, or the place where the crown is beneath the soil, to get a little light and air through its thinner covering and to start into a strong growth in early Spring before the heavier covering around the plant has to be taken off. Furthermore, when uncovering the garden in the Spring, we can determine exactly where each plant in our garden bed or border is, and will not be likely to break off the crown buds or tender shoots which are just coming out of the ground.

The material commonly used for covering hardy herbaceous plants, including bulbous plants, cannot well be improved on, namely coarse strawy horse manure directly from the stable heap, well rotted horse or cow manure, coarse meadow hay, straw, evergreen tree boughs. It is much better to mix the coarse or the well rotted manure and the leaves together, as leaves alone when beaten down by the Winter rains or weighted down by the snows form too impervious a covering. Evergreen boughs, when they are obtainable, are useful in holding down the leaves, hay or straw, when they are first put on and preventing them from being blown away by the winds. The boughs indeed, if put on thickly enough, are in themselves a sufficient covering for the hardier plants.

Bulbs, especially those which field mice destroy, should not be covered till we find the surface of the soil frozen to a depth of two or three inches. Then they should be covered thickly enough, so that the ground beneath the covering will remain frozen till Spring. This prevents the field mice, which may make their homes in the covering, from digging easily down to the bulbs, and at the same time the bulbs are properly protected during the Winter from frosts.

Rose bushes, especially the taller growing hybrid perpetuals, should be tied closely with some soft material, raffia or soft string, to stakes placed firmly in the ground near them. As soon as the ground freezes a little at night, the soil should be heaped up around them a foot or so high, and after this covering of earth has frozen to the depth of an inch or two, the entire bush, in case of the teas and hybrid teas, should be covered with coarse manure, leaves, hay, evergreen boughs, whichever of these is most available. The hybrid perpetuals will probably be too tall to cover in the same way as the teas and hybrid teas, but straw

or burlap may be tied closely around them and the stout stake also which supports them. As regards the rambler and climbing roses in sections where the temperature goes so low as to kill back badly the long shoots of the Summer's growth, each shoot as Winter approaches may be formed into a coil, but not so small as to break the shoot. The coils may be laid together at the foot of the bush and covered with soil and coarse manure or other material.

Half hardy deciduous shrubs and dwarf evergreens, whose branches hold the snow and are liable to be broken down by its weight, should have one or more strong stakes placed firmly in the ground near them, and the shrubs and evergreens tied to them more or less closely as they require. The surface of the soil around them should then be heavily covered with the usual materials for such a purpose, and if the deciduous shrub is rather likely to be killed back more or less in Winter, the covering may be heaped around its main stem well up to where the lower branches put forth.

This broad leaved evergreen needs to be prepared for Winter in a somewhat different way than rose bushes and other deciduous and evergreen shrubs. In the first place, unless the soil, in which they are growing, has been thoroughly soaked deep down by copious Autumn rains, it will have to be watered with a hose or buckets. Rhododendrons cannot retain their foliage in good condition during the Winter, if they enter the Winter season with their roots dry. Some advocate, when artificial watering is necessary, that before the water is applied, numerous deep holes be made with an iron crowbar among the rhododendrons or, in the case of a single specimen, around it, since this will cause the water to go down directly deep among the roots. After the soil is well soaked, either by the rains or artificially, a heavy covering of leaves or manure, or both, should at once be put around the shrubs. Lastly a shelter formed preferably with evergreen boughs (red cedars are also excellent for this purpose) set in the ground firmly, or by boards nailed to posts, must be given the rhododendrons on the south to shelter them from the Winter's sun, and on the north to keep off the biting Winter wind. Of the two the southern barrier is the most important. If the rhododendrons are in beds, the evergreen boughs or small cedars may be stuck in the ground around the beds and in between the shrubs. If, however, the shrubs are growing in such a position that evergreen trees, or even large deciduous trees, shield them in a considerable measure from sun and wind, the barriers of boughs or boards are not necessary.

THINGS AND THOUGHTS OF THE GARDEN

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L. Harrisi is reported to be larger and of finer quality than for a number of years, and there are also stocks of Creole and other lilies offered by some of our Southern growers, so that we shall probably get a fairly good supply for Easter after all. How we shall fare with the various forms of Speciosum and Auratum remains to be seen; no doubt these will be late also, and as the bulk are used for outdoor planting rather than forcing late arrivals mean later plantings. A good covering of leaves or straw will, however, exclude frost so that it will be easily possible to plant these late arrivals even in late December or January, which will be preferable to carrying them over Winter in pots.

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The present Summer has been one of the driest on

record. In Boston only .34 of an inch of rain fell in September and with an accumulated deficiency of the year of 9 inches, it is not surprising that many cities, towns and villages are in serious straits for water. As the drought came in late Summer, the effects on vegetation are not nearly as apparent as if it had come earlier and crops of both fruits and vegetables are extremely good; the Autumn tints on trees and shrubs are also very fine. Lawns, unless watered, are a veritable eyesore with their accumulations of noxious weeds and it has surely been a hard season for new seedings. The continued dryness will assure us well ripened wood on deciduous trees and shrubs, but it is very serious for evergreens, more especially those more recently planted, and copious waterings should be given these to save them. It is of little value to pour water on the hard surface but if a basin with a good rim of earth round it circles each plant and this is filled with water once or twice, and later the dry earth is pushed back, we may rest assured that the roots are damp. It is especially necessary that all evergreens have their roots wet ere the ground freezes up or we can safely look for a big death list next Spring, particularly if the ground should remain hermetically sealed as sometimes happens for many weeks.

LILIES FOR EVERY GARDEN

(Continued from page 251)

some well-known tunes sung until they become hackneyed, but the very charm of the tune was the reason of its popularity. Grouped with grey bee-balm and pale yellow day lilies (*hemerocallis thunbergi*) their odd pinkish orange color is at its best. Speciosums are planted in the phlox clumps which they follow and alongside blue salvia. Martagon album in partial shade against a bank of ferns are dainty and hardy. In a nearby rock garden there are quantities of philadelphicums which were transplanted from the fields bordering on the woods to a dry, semi-shady place where they are doing very well.

I urge every one to plant lilies. Start with a few and you will not regret it. Try some kinds new to you. There is no thrill for the gardener like seeing a hitherto unknown flower opening where he can watch it. Lilies glorify the garden as no other flowers do. Whether it is because the lily has been associated with sacred subjects in pictures, tapestries and statues, or solely because of its beauty there is something of a spiritual quality about most of them.

AUTUMN

The yellow year is hasting to its close;
The little birds have almost sung their last,
Their small notes twitter in the dreary blast—
The patient beauty of the scentless rose,
Oft with the morn's hoar crystal quaintly glassed,
Hangs a pale mourner for the Summer past,
And makes a little Summer where it grows;
In the chill sunbeam of the faint brief day
The dusky waters shudder as they shine,
The russet leaves obstruct the straggling way
Of oozy brooks, which no deep banks define,
And the gaunt woods, in ragged, scant array,
Wrap their old limbs with sombre ivy-twine.

—Coleridge.

Self-Sown Biennials

TO every amateur who works with his own ten digits and not by the proxy of a professional gardener there comes a time, I fancy, soon or late, when his spontaneous energy is less than it once was, and the passion for muscular toil sensibly abates; when, in short, he is disposed, in respect of garden work, to accept the advice to "moderate his transports." It is then one learns to regard with a preference—half gratitude, half affection—those easy plants which give little trouble—bulbs which come up year after year without abating a jot of their beauty, herbaceous plants which require neither annual manuring nor periodic transplanting, shrubs that want nothing for their well-being but abundance of space, and things, annual or biennial, that see to their own propagation and require on your part nothing more arduous than judicious thinning with the hoe. About these last a word may be permitted by way of suggesting to brother gardeners, whose vertebral column is possibly not the elastic thing it once was, one or two plants of this easy class which will well repay the little trouble of growing them; not so much about annuals, however, as about some half-dozen biennials which are worth while and which require only a first foothold to become permanent denizens of the garden. Though, if it comes to that, there is no lack of desirable annuals with this same valuable quality of permanency; for, however tender and beautiful an annual may be, there is somewhere a country where it sows itself one year to come up the next, where, in other words, it is a weed. *Nigella*, *Centaurea*, *Iberis*, *Nemophila*, *Clarkia*, *Alyssum* are weeds in the country of their nativity and may become weeds in any garden where slugs permit. A biennial, however, is another thing, being, as a rule, of larger stature and more stately habit, and requiring, in consequence, two years to build up its system and complete the cycle of its growth. One of large size and imposing appearance, is the tall Evening Primrose (*Oenothera biennis*). This beautiful and interesting flower has been a standing feature in my garden for ten years and more. It comes up here and there in the borders in unexpected places—often, of course, where it is not wanted, but often also, I must do it justice to say, precisely where I should have wished it to be if I had thought the matter out. In any case, if it should come where you do not wish it to be, a touch of the hoe is sufficient. On the other hand, should you wish to have it in any spot where it has not chosen to come, few things are so easy to transplant. The endurance of the plant is wonderful. Dry weather or moist, your transplanted *Oenothera*, after wilting for a day or two, will brace up and look as lively as if it had sown itself where you had placed it. The beauty of the Evening Primrose is sufficient to recommend it if it had nothing else, but, for me, one of its attractions is its evident delight in life and growth. I had rather see, for my part, a Dock or a Thistle grow as if it enjoyed life, than the most precious stove or alpine treasure that lingers out a coddled existence; though, for all that, I do not deny the satisfaction there is in coaxing a sick plant back to vigorous life. Every hospital nurse knows this kind of triumph. But there is no room for coaxing or coddling with *Oenothera biennis*. Wet does not harm it, neither does drought; it seems to prefer exactly the conditions of soil and weather it happens to get. It is subject to no parasites, blights or diseases that

I have ever seen. It stands erect without support; or if the wind does happen to twist off a branch or two, these are not missed—there are so many left. But, after all, the distinction of this, as of all Evening Primroses, is that it is a flower of the dusk, one of the far from numerous vespertine group which wake to full activity only when Marigolds, Daisies and other drowsy composites are folding their petals to rest. Night moths, which are so drawn to light in darkness, must certainly frequent the flower, though I do not know which they are. When the evenings begin sensibly to lengthen, and the air has an eager tang, which, though pleasant, is a premonition of something more nipping and less pleasant yet to come, my own otherwise modest garden becomes for a time almost flamboyant, lit up as it is from end to end with Chinese lanterns—that is to say, with lingering blooms of many-colored single Hollyhocks swinging on their wands to the wind, but chiefly with the vesper lamps of *Oenothera biennis*, which flop open one by one while the light is waning, as if fairy Mrs. Gamps were unfurling their umbrellas. Those who grow these *Oenotheras* must have observed how punctiliously they observe their times and seasons—how, in opening their first blooms, the various plants synchronize (there is no other word) as regards not merely the hour, but the day and the month, possibly even the minute. Scattered plants, separated possibly by considerable distances in a large garden, will burst into bloom with a wonderful unanimity, at the same hour of the same day of the three hundred and sixty-five. Finally, to complete its tale of virtues, this flower has a pleasant fragrance—not obtrusive, but faint and elusive rather, as befits the crepuscular hour, yet sufficient sometimes to cloy the air a little, for the perfume is of the rich exotic kind which we associate with such things as Orange Blossom, Jasmine and Stephanotis.

Another fine biennial which may be trusted to hold its own when once introduced, is the Giant Sea Holly (*Eryngium giganteum*). I suppose we must regard all the Sea Hollies as umbellifers. But to eyes like mine, which look to the appearances of things rather than to their hidden affinities, this *Eryngium* has the Thistle attributes raised to a high power, except stature, perhaps, for I do not suppose that the height even of luxuriant specimens is much over 3 feet. But the completeness of its holly-like apparatus for self-defence, its mathematical grace and symmetry of shape, and the veined silver of its leaves seem to assign it a place among those things which "none may molest with impunity." One must not, however, in this biennial, look for the steel-blue which is the conspicuous beauty of stem and flower in so many *Eryngiums*. Silver is its metal, not steel, simulation of frosty silver being its outstanding feature, the most successful mimicry of the metal known to me among many silvery plants. I have spoken, erroneously perhaps, of this flower as a biennial, since it might possibly be, more correctly described as a triennial. Grown under exceptionally favorable conditions, the Giant *Eryngium* may flower the second year from germination, but I do not think many of mine, if any, do so. In this, the third year of one batch, there has been a great display of flowering heads—leaving many, however, for next year, which, when they come, will, properly speaking, I suppose, be quadrennials.—*The Garden*.

Foreign Exchange Department

KNIPHOFIAS. The effectiveness and brilliance of Kniphofias in the scarlet border, or the mixed herbaceous border, during August and September is well known, and these striking Autumn flowers should be largely grown for these purposes.

They are, however, even more effective when grown in large masses in the wild garden where they may be given prominent positions, as they are magnificent when in flower and in Winter their dark green leaves are quite attractive. They revel in an open position in full sunshine, where their torch-like spikes are seen at their best and produce a wonderful blending of yellow, orange and scarlet with a soft "bloom" thrown over these brilliant shades. Planted in bold groups their effect is visible from a long distance, so that they are plants of much value to the landscape gardener.

K. aloides and the varieties *grandis*, *nobilis* and *longiscapa* are all particularly handsome, and well worth growing, as also are many of the hybrids such as *Obelisque* and *Ophir*, which have handsome yellow and orange spikes of flower 6 feet or 7 feet high. There have been many varieties of Torch-Lilies introduced during the last twenty years, but probably seventy per cent. of them are traceable to *K. aloides*, itself a plant capable of yielding very fine effects either planted in quantity, alone, or grouped with other suitable vegetation.

Kniphofias grow well in a good, medium, sandy loam and appreciate liberal, annual top-dressings of manure. The soil should, however, be well drained, as, although these plants like plenty of moisture during the Summer, anything approaching stagnant moisture at the roots is inimical to them, and is frequently the cause of losses during the Winter.

Kniphofias may be increased by division in the Spring, but it is not wise to disturb the old plants more than is really necessary. Seed is produced fairly freely from the bases of the earlier flower spikes, and affords an additional means of propagation.—*Gardeners' Chronicle* (British).

BOISSIER'S GLORY OF THE SNOW.—*Chionodoxa Lucillæ* has long been known as one of the most charming of the Glories of the Snow, and ever since its introduction it has been recognized as one of the most charming of our Spring flowers. It is not generally known, however, that the form in general cultivation is not the same as the one originally found by Boissier and described by him in glowing language. The *Chionodoxa* named *Lucillæ*, which was first introduced, flowers a little earlier and is not such a fine blue as Boissier's plant. Within recent years the latter has come into commerce and is one of the most delightful of all. It resembles the other in the possession of a large white centre, but the blue which surrounds this is much deeper, yet of great brightness. Tastes will not agree in everything and there may be some dissent from my view that Boissier's variety is superior to what is known as the type. It may be cultivated with advantage, either in clumps or masses in the rock garden or grass or in the front of the border. Bulbs are not expensive and may be obtained from most bulb dealers and planted at a depth of 2 ins. to 3 ins. as soon as obtained. Boissier's Glory of the Snow also makes a good pot plant, putting the bulbs almost close together and bringing on slowly in a cool house, or, better still, plunging the pots outside and bringing them in as soon as the plants show flower.—*The Garden*.

THE GLADIOLUS AS A DECORATIVE CUT FLOWER. The value of the Gladiolus as a decorative garden flower has been realized for many years, but, chiefly owing to its size, it has never been seriously considered as having any particular merit as a cut flower for indoor decoration. However, the improvement of the primulinus hybrids has now, to a large extent, removed the disadvantage of unwieldiness possessed by the *Gandavensis* section, though the latter type still holds a very high place in decorative schemes on a large scale, such as ballrooms.

The main points in favor of the primulinus hybrids are beauty of coloring, and shape of flower, gracefulness of spacing of the blooms on the spikes, and slenderness of the spike itself.

In glass bowls, with *Gypsophila*, the spikes may be arranged quite easily, to give a very beautiful effect. The straight, stiff, sword-like spike of the *Gandavensis*, with its mass of closely set flowers, does not show to advantage and, should any spike come away from the perpendicular to any degree, the whole beauty of the flower is lost. With the primulinus hybrids it is different; the graceful curves of the slender spikes and the peculiar shape and placing of the flowers themselves, both lend beauty to a bowl.

August and September often present difficulties in the way of indoor floral decorations, which these primulinus hybrids go far to overcome. The initial outlay is not great, the flowers themselves are no trouble to grow, and their beauty and value for Autumn decoration will be readily realized by all who cultivate them.

[Our correspondent does not refer to the value of the smaller-flowered varieties for floral decorations indoors. These, however, are exceedingly beautiful. Eds.]—*Gardeners' Chronicle* (British).

THE ORANGE-FLOWERED BITTER VETCH.—Falling over a large boulder the orange-yellow flowers of this plant are very attractive, the color unusual among this class of plants. Unlike the Spring Bitter Vetch (*O. vernus*), which grows little more than 9 inches in height, this handsome kind reaches 2 feet or more and is suitable for positions as above described. This plant requires to become well established before commencing to flower freely, after which it needs very little attention. It blooms during May and June, and I was pleased to see a vase of its pretty flowers in one of the exhibits at the Chelsea Show.—*Gardening Illustrated*.

HEUCHERAS.—Heucheras are not grown so much as they deserve to be, and from gardens where one would expect to find them they are absent. Planted in clumps about a border they are charming in their season of blooming, and the slender spikes of flowers contribute not a little to the beauty of a garden. This season I have used the spikes as adjuncts to vases of other flowers, and they have been much admired. Perhaps still the best-known of the Heucheras is the old *H. sanguinea*, with coral-red flowers. *Edge Hall* is a salmon-pink, very pretty, whilst *Flambeau* (deep red) and *Nellie* (light pink) are worth inclusion in any garden.—*Gardening Illustrated*.

THERMOPSIS. Though a rampant grower and a very aggressive spreader, so that it needs care in planting, this is a very valuable plant for the Spring, and I find it comes in very well for house decoration, its spikes of yellow Lupin-like flowers combining very well with blue and white Lupins in a tall vase. I find it a very attractive plant, and if one can give it plenty of room it will need no care whatever, but go on happily year after year, giving an abundance of spikes of deep, clear yellow, Pea-shaped blossoms. It is a true friend to a busy gardener because of its contented habit. Another great point in its favor is that it needs no staking, nor have I ever found it subject to insect pests.—*Gardening Illustrated*.

SCABIOSA CAUCASICA.—If I were limited to six sorts for cutting I would certainly include the Caucasian Scabious. More especially would I choose some of the seedling kinds which show a decided improvement in color and form. There is a varietal form which produces immense flowers of a much deeper shade than the type. This sort or a variation from it appears under various names in different catalogs, but it is advisable to make sure of securing a really good strain. The hardiness of this Scabious is beyond question. It is quite true that the plants have a way of dying off in the Winter, but this is invariably due to excessive moisture. In heavy retentive soils in Devonshire this plant frequently succumbs in the Winter, but I have known of large plantations in a Yorkshire nursery where losses rarely occurred even in the most rigorous of Winters. It is really a question of giving them a fairly light and well-drained soil. Well-rotted manure may, of course, be generously supplied, and this appears to be a necessity in order to secure an abundant supply of good long-stemmed blossoms.

This Scabious may be easily propagated from seeds, and it is advisable to raise a batch of seedlings now and again to provide against accidents. Seeds may be sown now under handlights in a light sandy compost containing a plentiful supply of leaf-mould. The lights should be removed during the Summer and replaced in the Winter. The seedlings may be transplanted to their flowering quarters the following Spring. I do not wish to dogmatize in this matter. I mention this course of procedure as being the one I prefer to follow, and which I have found most suitable to the conditions prevailing in a Devonshire garden. Others prefer to sow in the Autumn, and doubtless they achieve an equal measure of success by so doing. The older one gets the more does one realize the futility of attempting to lay down hard and fast rules in gardening matters. Most of us are able to call to mind instances where orthodox systems have failed while methods which the trained gardener would avoid have been attended by success.—*Gardener, Illustrated*.

PINKS: OLD PLANTS VERSUS NEW.—I find there is a certain amount of sentiment in the minds of many folk who grow Pinks in their gardens that is seldom associated with other early Summer-flowering plants, and is somewhat difficult to appreciate. For instance, how often one notices in gardens miniature beds of Pinks that long since have outgrown the space they originally occupied. It was never intended that they should rob ground belonging to other plants and to smother them, but owners of these gardens "could not find the heart," so they have told me, to limit the growth of their sweet-smelling favorites, and so Mrs. Sinkins and the rest of them have gone on from year to year unmolested. It almost inevitably happens that a day comes when at the centres of these "rings," or small beds, canker shows itself, and it quickly spreads, the result being that the flowers are poorer in quality each succeeding year. To keep up a healthy stock and to ensure Pinks

of good quality the better plan is to propagate a certain number of plants from cuttings every season after they have done blooming, and I venture to say that one obtains a more prolific display from younger plants than from huge masses undisturbed year after year.—*Gardening Illustrated*.

THE TWO-FLOWERED EVERLASTING PEA (LATHYRUS GRANDIFLORUS).—Remarkably handsome at the present time is this large-flowered species, which revels in almost any position. A few plants put in at the foot of a pergola have grown into quite a colony, and, scrambling up the battens and among the single white Roses of the pergola, the profusion of flowers is unusual and very beautiful. The wiry growths are 6 feet or more in height, and sprays of them have fallen into the inside of the pergola, which is built upon a retaining wall, and these hang down the wall in a picturesque way. The rosy-purple flowers are the largest of any of the Everlasting Peas, and the plant is among the hardiest. The flowers are always borne in pairs. All the attention this beautiful plant requires is the removal of its old growth in Autumn and a little top-dressing if extra vigorous growth is desirable. If planted near a trellis or similar support it will affix itself in a charming manner, without the necessity of either tying or training. Rough branches also form excellent supports. All the perennial Peas are well worth a place in the garden for, in addition to their unusual beauty and charm when used to grace trelliswork and other rough supports, they give us delightful pictures when planted on grassy, sunny slopes, with their flowery growths spreading out in all directions.—*Gardening Illustrated*.

DIGITALIS.—Wild Foxgloves seldom differ in color, but cultivated ones assume a variety of colors, including white, cream, rose, red, deep red, and other shades. The charm of these varieties, however, lies in their pretty throat markings—spots and blotchings of deep purple and maroon, which make large flowers resemble those of a Gloxinia; hence the name *gloxiniiflora* is applied to some finely-spotted kinds. The garden plants make grand border flowers; they are more robust than the wild plant, and have stouter stems and larger blooms. If associated with other tall plants they look well as a background to mixed borders; and the improved varieties have a fine effect in the wild garden if planted or sown in bold masses. They are good, too, among Rhododendrons, where these bushes are not too thick, and they charmingly break the masses of foliage. The seed is small, and is best sown in pans or boxes, under glass, early in May. When the young plants are well up they should be placed out of doors to get thoroughly hardened before being finally planted out. In shrubbery borders varied clumps of several plants produce a finer effect than when set singly. The Foxglove frequently blooms two years in succession, but it is always well to sow a little seed annually, and if there be any to spare it may be scattered in woods or copses where it is desired to establish the plants. Those who do not require seed should cut out the centre spike as soon as it gets shabby, and the side shoots will be considerably benefited, especially if a good supply of water be given in dry weather. In a good variety a side shoot will supply an abundance of seed.—*Gardening Illustrated*.

PLANTING HARDY BULBS.—The bulb season has returned, and with it the usual catalogs, with their tempting offers of choice varieties of Narcissi, Tulips, Hyacinths, Crocuses, and many other scarcely less attractive subjects.

The purchasing of bulbs is frequently delayed, to the disappointment of the purchaser. The bulbs that ripen first come earliest to the market, and are usually of better quality than those that ripen later. Further, deterioration in store, although not rapid in the earlier part of the season, is nevertheless, a factor, and it increases as the season advances. The growth which actually takes place in Crocus, Hyacinth, and Tulip bulbs while they are in the store affords sufficient proof that the store-room is not the place for them to pass the Autumn in, however well they may have passed the time there in the later Summer months since they were harvested. The best advice that can be given to those who would have a creditable display of bulbous flowers next Spring is to buy early and plant early.

Hardy, Spring-flowering bulbs are amongst the cheapest of garden plants; they produce a floral display of surpassing splendor if cultivated with reasonable skill, and the planter may indulge in the greatest variety without incurring an extravagant outlay.

Where geometric arrangements of beds are to be planted with bulbs, a few sorts will be preferable to many, but in borders a wider range of varieties may be employed. The choice of varieties is largely a matter of individual taste, but for a small formal garden a combination of yellow and scarlet flowers produces a brilliant effect.

One of the greatest recommendations of early bulbs for furnishing the formal garden is that their growth is completed before the season of Summer bedding, and by the end of May the bulbs are so far ripe or ripening that lifting does not seriously harm them.

Apart from bedding schemes carried out with flowering bulbs,

every garden offers great scope for the use of these plants in a variety of ways. Planted in quantity and variety in grass and in the more open spaces fringing the shrubbery, they are beautiful and attractive and a source of much pleasure.—*Gardeners' Chronicle* (British).

SCENTED LUPINE.—Sheer amazement is the only feeling of which one can be conscious when standing before an exhibit at a flower show of the modern Lupin in its full glory, a sensation that is only intensified when memory begins to work and recollection of the varieties of but a few years back comes vividly before the mind. Who could or would have supposed that so much latent possibility lay behind the modest spikes of white, blue and purple, with which we were all so familiar? It was a beautiful flower then (when it did not disappoint by shedding a good third of its buds unopened), but today words absolutely fail to convey any adequate picture of the marvellous range and beauty of the colors displayed. This, however, is not all. Nature, when she is encouraged by the hand of the hybridist, is apt to overflow with bounty and in the case of the Lupin she has, as her latest and best development, given us a series of perfumed forms. This is not a faint washy odor, but a delicious and unmistakable perfume that fills the air all round where they are growing. The color range is not restricted in this remarkable break, for every shade of white, blue, mauve, purple, crimson, pink and yellow is represented and one is only left wondering what surprise this remarkable plant can now have "up its sleeve" for us.—*The Garden*.

Brief Horticultural Jottings

We are accustomed to think of all the big fruit orchards of our country as being on the Pacific side of the continent and it may come as a surprise to a good many to know that little Vermont lays claim to the biggest orchard in the world. It is the property of Edward H. Everett and since plantings were begun in 1911 no less than 50,000 apples and 15,000 other fruits consisting of pears, quinces, cherries and plums have been planted. The ultimate goal is 100,000 trees, which will occupy over 3,600 acres of land. Many of the rows are a mile in length. Each row is given a letter and each cross row a number, so that each tree can have its specific identification. This great orchard in the Green Mountain State is in Bennington and is managed in a thoroughly up-to-date and scientific manner.—*W. N. C.*

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St. Dorothy, patroness of gardeners, was a virgin martyr of Caesarea, Cappadocia, martyred under Diocletian about A. D. 303. February 6 is the usual day dedicated to her, but at Arles the date is March 28. According to the legend, she was asked by a lawyer, Theophilus, to give a sign while undergoing torture; upon her prayer an angel appeared bearing three apples and three red Roses. She was then beheaded, and after her death the angel returned to Theophilus bringing the fruit and flowers as a gift from St. Dorothy, whereupon he was converted and martyred also. In art she is depicted holding a sword, with the Apples and Roses at her side or in her hand.—*Florists' Exchange*.

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We learn from the *Journal of the Royal Society of Arts* that a company in the Philippines has recently begun the manufacture of paper from the husks of coconuts, of which it is estimated that 350,000 to 400,000 tons are wasted annually. The present cost of production is high, and it will be necessary to convert the husks into pulp near the mill from which they are a by-product, in order to save expense in transportation. Even then it is questionable if the pulp can be produced at a figure that will allow it to compete with wood pulp, or other kinds of pulp now used for paper making. Other uses to which the coir fibre is put are rope making, filling mattresses, etc., and the making of corky pulp for insulation purposes.—*Gardeners' Chronicle* (British).

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In a field in Madison county, Iowa, stands a monument which was recently dedicated to an apple tree. This tree is the parent tree of the now famous Delicious apple. After a life of fifty years the tree still stands and bears abundantly. The offspring, in trees distributed and planted, number more than 7,500,000, according to the lowest estimates by experts, and fully one-third of the baby trees have survived and grown to a producing age. The estimated value of the annual crop of apples brought to the market from these trees is \$12,000,000. Therefore, the 50-year-old tree, near which has been placed the memorial, a granite boulder suitably inscribed, may call itself the \$12,000,000 apple tree.—*Florists' Review*.

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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The National Association of Gardeners operates a Service Department to serve country estate owners in an advisory capacity in adjusting problems which occasionally arise in the maintenance of country estates.

Owners desiring the services of gardeners, thoroughly versed in all phases of the profession and qualified to assume the responsibilities the position calls for, as superintendent or gardener, should apply to this department.

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ST. LOUIS, MO.: George H. Pring, chairman; Hugo M. Schaff, secretary.

NASSAU COUNTY, L. I.: James Duthie, Oyster Bay, chairman; John McCulloch, Oyster Bay, secretary.

BOSTON, MASS.: Robert Cameron, Ipswich, chairman; W. N. Craig, Weymouth, secretary.

WESTERN PENNSYLVANIA: Manus Curran, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

CLEVELAND, O.: P. P. Brydon, chairman; Arthur Brown, secretary.

NORTH SHORE OF ILLINOIS: James A. Wilson, Lake Forest, chairman; H. B. Clow, Lake Forest, secretary.

MONMOUTH & ELBERON, N. J.: Thomas W. Head, Red Bank, chairman; J. B. Schlotmann, Elberon, secretary.

NORTH FLORIDA: Herbert Tickner, Orange Park, chairman; Alfred Addor, Jacksonville, secretary.

HOW THEY DO IT

A Massachusetts member on reading the report of the Pittsburgh convention in the GARDENERS' CHRONICLE and noting on the list of attendants the names of men who seldom miss an annual meeting, wrote to inquire how they do it, while commenting on the fact that he had not been able to leave the place for a day since the Boston convention last year. In answering this member, the secretary replied that these men regard themselves as equally entitled to an annual vacation as are men in other fields of endeavor, and that it has been his observation that there are few employers who will deny their gardeners a holiday in order to attend the annual meeting of their association if the matter is presented in a proper light, for they become equal beneficiaries. The days are not wasted recreation. Traveling tends to broaden one's view, while meeting with one's fellow gardeners from all parts of the country for an interchange of ideas tends to increase one's knowledge.

THE NORTH FLORIDA BRANCH

The following gardeners, H. W. Tickner, of Orange Park; Leon C. Eldredge, Michael Salmen, Gus Gottschlich, J. K. Brower and Alfred Addor, all of Jacksonville, met at the home of Mr. Tickner on September 17 for the purpose of organizing a local branch of the National Association of Gardeners, to be known as the North Florida Branch. H. W. Tickner was elected chairman and Alfred Addor secretary and treasurer.

The meetings will be held regularly the third Friday of each month in the different members' homes. Each member is assessed dues of fifty cents a month. After some lengthy discussion of a more or less business nature, it was moved and seconded that we accept invitations from garden clubs to give them information regarding garden work. Michael Salmen and Gus Gottschlich were named as a committee to inquire into the advisability of making an exhibit at the coming Florida State Fair and Show in Jacksonville during November.

An expression of thanks was tendered to P. W. Popp, of New York, who was present at the meeting and helped us with suggestions as to the course to follow. After the meeting had adjourned, an inspection of the Ferguson and Johnson estates followed.

ALFRED ADDOR, Secy.

CLEVELAND BRANCH

The Cleveland Branch of the National Association met at the Alhambra Restaurant on Sept. 4. Three new members were endorsed. This Branch was formed April 30, 1923, and has held four meetings, endorsed seven applications for membership in the National Association, and has been instrumental in securing several sustaining members. Up to date the Branch has twenty-five members.

The evening was spent in discussing various subjects, including the Pittsburgh Convention and the coming National Flower show and conference. Adjourned to meet at the Mrs. F. F. Prentiss Est. (Robert P. Brydon, Supt.), Monday evening, October 29.

A. BROWN, Secy.

NORTH SHORE OF ILLINOIS BRANCH

The third meeting of the above branch was held at the home of James Wilson, of the H. B. Clow Estate at Lake Forest, on Sept. 19. Considerable discussion on Article III, Sec. 1 of the Constitution and By-Laws was taken up and the ten members present suggested that it be either revised or done away with. If not they believed it was going to be hard to reinstate some old members. (This By-Law refers to members suspended for non-payments of dues, having to pay past indebtedness to the association before reinstatement). Thomas Dobbin, of the Farzau Estate, Highland Park, joined up with this branch. Four new applications were received and will be voted on at the next meeting to be held on Oct. 18 at the home of the secretary at Glencoe. A pleasant evening was spent in discussing garden and other topics, and after partaking of Mr. and Mrs. Wilson's hospitality, the meeting adjourned.

J. R. CLARKE, Secy.

LETTERS OF APPRECIATION

The following are extracts from letters received by the secretary:

"I should like to become a sustaining member of your association but do not know the procedure, dues, etc. I always read the GARDENERS' CHRONICLE and approve of the work you are doing.

"Sometime through your Service Department, I may secure a more enlightened type of head gardener than I now have."

"I enclose check for ten dollars for sustaining membership in the association.

"I wish to take this opportunity to thank you for recommending — to me, Mrs. — and I are delighted with him and his family, and do not see how we could be more pleased with anyone."

"My head gardener here has called my attention to your association by giving me to read the September number of the GARDENERS' CHRONICLE. I shall be glad to be enrolled as a sustaining member and enclose my check for ten dollars to cover membership fees."

NEW MEMBERS

Sustaining: Mrs. Jesse I. Straus, Mt. Kisco, N. Y. (Fred W. Sparks, superintendent); Clarence L. Hay, Newbury, N. H. (Percy Plummeridge, gardener); E. J. Dives, Reading, Pa. (Frank Jenkins, gardener); James Parmelee, Painesville, O. (George Wyatt, gardener); Mrs. Clement S. Houghton, Chestnut Hill, Mass.; Mrs. Edward S. Harkness, New London, Conn. (Stanley Jordan, superintendent); Mrs. S. Brinckerhoff Thorne, Greenwich, Conn. (Angus G. Ross, superintendent).

Active: Miss L. Jacques, Cleveland, O.; Walter Cox, Youngstown, O.; Andrew Ferguson, Madison, N. J.; Robert A. Chesney, Montclair, N. J.; Leon C. Eldredge, Gus Gottschlich, Jacksonville, Fla.; J. T. Patterson, Atlanta, Ga.; Adrian P. Wexel, Ann Arbor, Mich.

Associate: Charles F. Irish, Cleveland, O.

LOCAL SOCIETIES

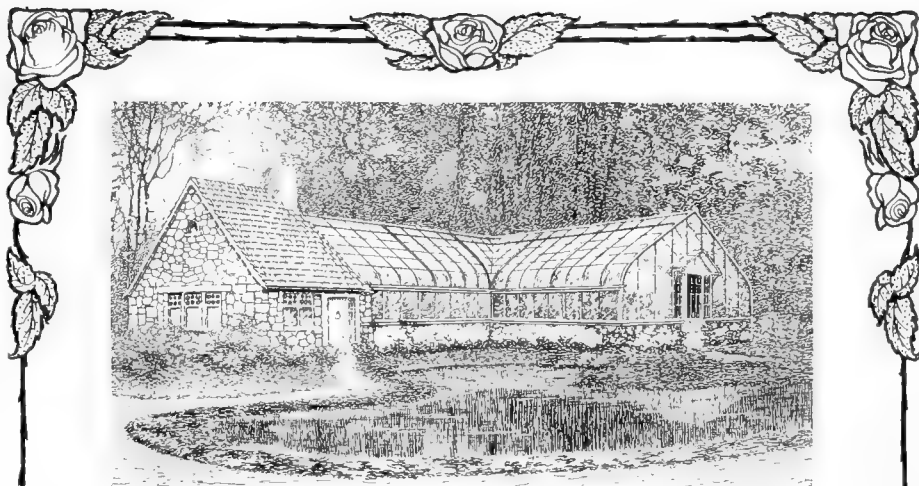
WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting of the above society was held in Greenwich, Sept. 11. An invitation was received from the committee in charge of the Cos Cob Fair asking the society to help the fair by making an exhibit. In the monthly competition, W. D. Robertson received first for a specimen *Adiantum cuneatum*; Edwin Beckett, second, for a *Cattleya Fabia*. For fruit and vegetables, John Wilson was first with a collection of fruit; H. F. Bulpitt, second, with a collection of vegetables; James Linane, third, with cauliflower. James Linane gave a talk on vegetables, which was very interesting and provoked considerable discussion. James Stuart gave an interesting account of the convention of the National Association of Gardeners, which he said was the best he had attended so far.

The twelfth annual flower show of this society held in Greenwich Sept. 12, 13, 14, was well attended. In spite of the prolonged drought which has seriously affected gardens hereabouts, the exhibits in Dahlia classes though not as large as at previous shows, made a very good showing. The exhibits of flowering and foliage plants were very good. Mrs. Whitelaw Reid, of Purchase, received a gold medal for a display of Orchids. Mrs. F. A. Constable, of Mamaroneck, received a silver medal for a group of flowering plants. Mrs. E. E. Smathers, of Port Chester, was awarded a silver medal for a choice group of foliage plants.

Among the winners in the private classes were: Mrs. F. H. Allen, Pelham Manor; Mrs. F. A. Constable, Mamaroneck; Mrs. Whitelaw Reid, Purchase; Mrs. E. E. Smathers, Port Chester; Mrs. E. H. Hooker, Mrs. W. Heacken, Mrs. J. A. Topping, Mrs. Luther M. Werner, of Greenwich.

For the collection of twelve vases of hardy herbaceous perennials, Mrs. E. E. Smathers was first. Mrs. Whitelaw Reid was first for the twelve vases of annuals. As usual, there was keen competition in these two classes. In the classes for Palms, Ferns and Foliage plants, Mrs. E. E. Smathers and Mrs. F. A. Constable were principal winners. Mrs. F. H. Allen won the silver cup donated by Andrew Kennedy, Inc., for twelve varieties of vegetables, Mrs.



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R. Siedenburgh winning the collection of six varieties.

The Garden Clubs made a fine showing, their classes being well filled. The amateur classes also were keenly contested. Prizes for baskets for effect were won by George Hewitt, James Tough, William Shaw and W. H. Maple. The feature of the last day was the table decorations. John Rutherford, gardener to Mrs. Hooker, was first, and George Hewitt, gardener to Mrs. Topping, second. Among those who had trade exhibits were: Mrs. R. Stewart Leckie, Stumpp & Walter Co., J. H. Troy, and Mills & Co.' Mills & Co. exhibited their new Dahlia, Myra Valentine. It is of the decorative type, a golden bronze.

ANDREW KNEUKER, Cor. Secy.

NASSAU CO. HORT. SOCIETY

The monthly meeting of the above society was held in Pembroke Hall on Sept. 12. President James Gladstone occupied the chair. William Framed, J. A. Fichter and John Corcizea were elected to active membership; five petitions for active membership were received at this meeting.

Messrs. Woods, Carter and Westlake judged the exhibits and their decisions were as follows: six onions, first, John W. Everett; three sticks of celery, first, John W. Everett.

The Chrysanthemum schedule was read to which many new classes have been added this year.

ARTHUR COOKE, Cor. Secy.

STAMFORD HORT. SOCIETY

The regular mid-monthly meeting of the above society was held Sept. 17, with a good attendance of members.

A fine display of flowers, fruits, and vegetables was seen and appreciated by all who were there. The awards were as follows: Apples, P. Donovan, first prize; Apple and Pears, A. Hay, second prize; Vegetables, A. C. Boon, first prize, Cultural Certificate; Cucumbers, A. Geddes, Cultural Certificate; Dahlias, A. Geddes, first prize; Seedling Dahlias, A. Geddes, Certificate of Merit. The recent Dahlia Show held at Stamford was an event that brought out many fine displays. The Fall Show of the Society will be held in the Horticultural Hall on Nov. 2, 3, at which there will be a splendid lot of classes with special features in the fruit classes for the big prize for Apples given by Mrs. Helen Porter, of Stamford.

A very pleasant meeting then came to a close.

FREDK. WHITEHOUSE, Cor. Secy.

CLEVELAND HORT. SOCIETY

The regular meeting of the above society was held at "Glenallen," the estate of Mrs. F. F. Prentiss (Mr. R. P. Brydon, Supt.), on the evening of Sept. 13. The greenhouses were inspected where the stock was all found to be in excellent condition.

The meeting was called to order in the service building by President J. M. Stevens and the usual routine of business was transacted. Frank Balogh, gardener on Moreland Farm, was proposed for membership. J. C. Reibeling and Carmine Gyssels were elected to membership.

Carl Hagenburger, of Mentor, talked on the coming National Show to be held here March 29-April 5, 1924, and also Mr. Brydon, who mentioned that the N. A. G. medal would be awarded, N. A. G. members to take note.

A resolution was adopted to help make the National Garden week a memorable event in 1924, April 22 to 28.

Two vases of Dahlias were exhibited by George Wyatt, gardener on the Parmelee Farms, Painesville, which were very well grown and received a Cultural Certificate.

A vote of thanks was rendered to Mr. Brydon for his courtesy in entertaining the members.

W. J. BRUCE, Secy.

NARRAGANSETT GARDENERS' AND FLORISTS' ASSOCIATION

The members of this association visited some of the leading estates of Newport on Wednesday, Sept. 26, and were the guests of the Newport Horticultural Society.

Among the estates visited was that of E. J. Berwind, where the terraces and sunken gardens with their artistically trimmed hedges, noteworthy among which are the dwarf hedges of Euonymus, are the outstanding features of the gardens. The richness of the green lawns and hedges are broken only by the beautiful beds of red flowered Begonia Erfordii rubro.

The next estate visited was that of Mrs. T. J. Emery. Here the hardy borders with their mass of color are the leading features, and also the massive rock gardens. Everywhere the visitors were surprised by having a new and unexpected botanical picture unfolded to their view.

The Swiss Farm of Mrs. Curtis James was one of unique surprises for the visitors and showed much originality. The greenhouses here are filled with tender winter flowering plants, and the garden is a beautiful scene.



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Begonias which are in their prime and give promise of yielding a wealth of blooms at Christmas. The elaborate blue garden is the outstanding attraction on this estate.

Next on the program was the estate of Mrs. Hugh D. Auchincloss, where everything is done on a large scale. The rose gardens and the extensive rock gardens easily excel, with the greenhouses coming in for their share of notice, for here all kinds of vegetables are in all stages of growth for the coming winter.

The estate of Ex-Gov. R. Livingston Beekman was a treat to all, for seldom does one see Adiantum Farleyense grown to such a degree of perfection as it is here. Gardenias, too, are also a feature in the flowering plants and again is perfection attained in their culture.

The estate of John Aspergren was the scene of a wonderful display of Dahlias, not

only from a standpoint of new and rare colors but also the general condition of the plants, which were as good if not better than any dahlias in this section of the state.

We wish to thank the Newport Horticultural Society for their hospitality extended to us and particularly do we appreciate the efforts of Mr. Brown and Mr. Urquhart, who cheerfully gave their entire time for our entertainment.

CHESMAN O. CHILDS.

AMERICAN DAHLIA SOCIETY SHOW

While the commercial side of the growing of dahlias was well represented at the annual show of the American Dahlia Society in New York on September 26-29, the interest of the amateur gardener was not so

noticeable, due in all likelihood to the unseasonable weather which has caused much disappointment to dahlia growers this year. Though all the exhibits were not of the usual high standard, taken all in all, the show can be regarded as an excellent one, illustrating the increasing popularity of the dahlia as a garden favorite. The officers of the American Dahlia Society continue quite enthusiastic over its annual shows and a committee was appointed to seek larger and more suitable quarters for 1924.

W. Atlee Burpee Co., of Philadelphia, staged their usually attractive exhibit, featuring their new peony-flowered Fordhook Rose. The collection embraced large cactus, decorative, pompon, and show types. The A. D. S. gold medal was awarded to this trade exhibit for flowers grown by the exhibitor.

Two entries appeared in the class for flowers not necessarily grown by the exhibitor. John Scheepers, Inc., of New York, with the one variety, Jersey's Beauty, made a wonderfully fine display. About one hundred long-stemmed blooms were arranged in several large vases against a background of black velvet, which presented a most artistic effect. Jersey's Beauty, a seedling of Mrs. I. deVer Warner, a pure eosine pink shade, was raised by William H. Waite, of Rumson, N. J., and it has been exhibited at different shows this season with great success.

Stumpp & Walter Co., of New York, were awarded a silver medal for their display, which was arranged in two rows of baskets, filled with long-stemmed flowers, all of which were plainly labeled, so that it was easy for the visitors to read the name cards. A large number of varieties were displayed, including Millionaire, Judge Marean, California Gold, Sulphurea, Lady Betty.

Charles H. Totty Co., of Madison, N. J., staged a large and effective exhibit of dahlias, some of which were immense in size and among which were noted Mephistopheles, Insulinda and Etendard, Gladioli, delphiniums, and the beautiful rose Claudius de Pernet were other notable features of this exhibit.

George L. Stillman, of Westerly, R. I., had a very nicely arranged exhibit of one hundred and fifty varieties. Two new varieties, Head of the Nation, a purple maroon hybrid cactus, and Our Country, a deep purple with a white tip, decorative type, were prominent features.

Henry A. Dreer, of Philadelphia, showed several pleasingly arranged baskets of new varieties in which were included Jean Chayot, a choice flower of the cactus type, burnt orange in color, a new French variety, and Pride of San Francisco, a beautiful, golden pink of the decorative type.

William H. Waite, of Rumson, N. J., showed vases and single specimen blooms of enormous size. Francis Lobdell, Ambassador; Mrs. John T. Scheepers, Jersey's Jewel, Jersey's Gem and Gertrude Dahl were noted.

W. W. Kennedy of Red Bank, N. J., carried off the first prize for one hundred distinct blooms, showing a splendid collection.

As already stated the private growers and amateurs did not come forth as might have been expected. Miss Myra Valentine of New Canaan, Conn. (G. Carver, gardener) won in the class of fifty "shorts." Judge Elkins (E. Griffith, gardener) won in the class of twenty-five blooms and also staged a fine collection of long stemmed flowers in the display class, covering one hundred square feet. W. Atlee Burpee Co.'s silver cup and the Garden Club of America's medal were won by F. R. Waite of Montclair, N. J., who showed some fine flowers in the best general amateur display and also won the most meritorious exhibit class.

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SEWICKLEY, PA. DAHLIA SHOW

The third annual dahlia show held under the auspices of the Garden Club of Allegheny Co. and the Sewickley Hort. Society on Sept. 19-21 was a highly successful event, considering that the growers had the elements to contend with practically throughout the entire growing season. There was a good attendance each day at the show.

Mrs. W. B. Snyder (William Thompson, Jr., gardener) won the silver cup for the exhibit of one hundred square feet of dahlias. Mrs. Snyder also won the challenge cup. W. W. Wilock (R. Boxel, gardener) won the American Dahlia Society's medal for fifty blooms not less than six of a type. The award for the largest bloom also went to Mr. Wilock.

Among the other prominent winners were Mrs. E. M. Horne (Manus Curran, gardener), Mrs. H. R. Rea (Alex Davidson, gardener), E. A. Woods (H. Gibson, gardener), H. L. Mason (James Murphy, gardener) Mrs. Alex Laughlin (Henry Goodband, gardener) Col. Schoonmaker (John Carman, gardener), Mrs. B. F. Jones (William Baumgartner, gardener) and Hermann Rapp.

FIBRE FROM THE CAT-TAIL

The ordinary Cat-tail, which grows in marshy places and along streams over wide areas, has hitherto been chiefly admired for the handsome brown spikes from which it gets its name. Its leaves are used too for making rush-bottomed chairs. New uses have been found for it in Germany, born from their needs, and it is now announced that it is a most important source of textile fibres and also of food. This plant, the *Typha latifolia*, gives fibres which are not so fine as those of cotton or the nettle. Neither have they the softness and whiteness of fibres from these two staple plants. For this reason these fibres were employed only as a substitute for jute until about a year ago, but it is now announced that such gratifying progress has been made in improving the process of manufacture that it will probably become of great commercial importance, and is even expected largely to take the place of wool. The yield of fibre from this plant is very high, amounting to about thirty-three per cent, whereas air-dried nettle stalks yield only from six to eight per cent.

It is found also that the root of the *Typha* contains considerable quantities of nutritious material. These roots become felted together in cushions thirty to forty centimeters in thickness, and the roots of the single plants are sometimes as much as twenty meters long and ten centimeters thick. They contain carbo-hydrates in the form of starch and sugar, stored up for the use of the plant in amounts of as much as twenty-five to thirty per cent. They are thus capable of being used to feed cattle and even human beings.—*Scientific American*.

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KIRSTENBOSCH NATURE RESERVE

In the richness and variety of its flora the Cape Peninsula somewhat resembles California. When the Winter rains set in, hillsides and valleys are carpeted with flowers of all descriptions. Many of these flowers are not to be found elsewhere. Every province differs in vegetation, but the Cape Peninsula is especially qualified for a nature reserve on account of the rarity and variety of its floral specimens, and for the beautiful scenery which gives it a fitting background.

It is now 10 years since a gift from a private individual formed the nucleus of what is at present the Kirstenbosch Nature Reserve. Treated at first as a national botanic garden, it was kept exclusively for South African indigenous plants. These were obtained from all parts of the Union, South West Africa, and Rhodesia.

The protea collection is generally considered the most valuable. When in flower the proteas are inexpressibly beautiful. One may see the giant protea, with a bloom as large as a cabbage, its size offset by the wonderful delicacy of its velvety pink petals. It is known commonly as the "Mountain Rose," and grows on the mountain tops. There are many other varieties of protea, not quite so large, but equally beautiful. One lovely specimen is of a creamy-white color, tipped at the edges of the petals with the softest down of black hairs. It is a characteristic of the protea family to have this soft down on their petals, culminating in their tops in a more vivid and contrasting color. The leaves are generally fleshy, and extend right up the stem to the flower.

The succulent plants are a unique part of the Cape flora. In fact, they are so distinctive in South Africa that it has been decided to send a collection of succulent plants to London for the Empire exhibition at Wembley.

Last year the florist department added an extensive area to the already existing Kirstenbosch Gardens, so that in all the National Reserve now covers 1060 acres. The additional or new reserve continues right to the top of the eastern slopes of Table Mountain.

On the slopes of the mountain one may see the famous silver-trees. They grow nowhere else in the world, and are not indigenous to any part of South Africa except the Cape Peninsula. Some of the finest specimens are in the Kirstenbosch Reserve, several feet in circumference. The tree does not grow to a very great age, like the oak, but is at its best in the full vigor of youth. Its graceful shape would lose its beauty if it took on the great massiveness of age. The leaves of the silver-tree are long and narrow, and covered with a fine, silky down, which when lying flat gives the appearance of a silvery film. The down is affected by atmospheric conditions, so that at certain times the tree appears much more silvery than at others. The silvery-gray stems greatly increase the illusion of the tree being made of silver. Besides the silver tree, the ravines and slopes of the mountain contain 40 other species of indigenous trees. There are also ferns and orchids, and on the open spaces many different kinds of heath.

The Kirstenbosch Reserve is very near to a large city. In Natal a large nature reserve has recently been set apart in the Drakensberg Mountains, but it is rather difficult of access to the ordinary tourist and does not possess the variety of scenery of the Kirstenbosch Reserve, where the mountains look down upon the sea. Excellent roads make automobile travel easy and pleasant, and tourists from all over the world come in increasing numbers to enjoy the Cape Peninsula and its beautiful flora.—*The Christian Science Monitor.*

DAHLIA SUGAR

The cultivation of Dahlias has developed so many beautiful varieties, and the flower has been so much improved that it comes with something of a shock to some folks to learn that Dahlias are to be grown on a commercial scale for the sugar to be obtained from their bulbs. They will also be surprised to learn that more Dahlia bulbs can be raised to the acre in California than Sugar Beets. Nor does it cost more to raise them. However, the Dahlia bulb has less of sugar content than the Sugar Beet so it will likely cost more.

The new sugar is one and one-half times as sweet as cane or beet sugar and will hardly be a rival to the other sugars, as it will be more along the medicinal line. In this connection it may be mentioned that sugar was regarded as a medicine or a luxury in Europe up until the time that tea and coffee began to be universally used, and not a necessity, as it is now regarded.

The formula for making the Dahlia sugar was worked out in the laboratories of the University of Southern California, and the head of this department, Dr. Laird Stabler, states that it is now complete. The American people consume more sugar than any nation in the world, the consumption per capita in the last year being nearly a hundred pounds. This is an increase over the previous year.

Perhaps when the Dahlia fields get to growing, they will be allowed to flower, though this is hardly likely, as it will probably appear that it would detract from the amount of sugar stored up in the Dahlia roots.—*Scientific American.*

SOIL CONDITIONS INFLUENCE NIGHT AIR TEMPERATURES

A relation has been shown to exist between the temperature of the soil and the ensuing minimum temperature of the air immediately above. Low night-air temperatures in garden and truck farms may often be prevented by the selection of soil in which there is a sandy component, as sand and sandy loams generally store up more heat during the day than do most other soils and give off more in the night-time by conduction to the air above, thus diminishing the probability of critical temperatures and the formation of damaging frosts. The land in use should be well drained of surplus moisture, as wet soils are invariably cold soils and more susceptible to frost damage. Any soil, whether it be sand, loam, or clay, is warmer when it is clean and free from weeds and unnecessary vegetation.

Frost may form on one side of a street and not on the other, or in one section of a level farm and not in another, for one or more of several reasons, such as difference in soils, slight difference in elevation, in moisture, or in kind and extent of surface covering, or the amount of insulation received. Frost may appear in sections which have wet, cold soils covered with heavy vegetation or uncultivated, while on the same night and under the same meteorological conditions it does not form on other ground close by where the soil is relatively dry, warm and clean.—*U. S. Weather Bureau.*

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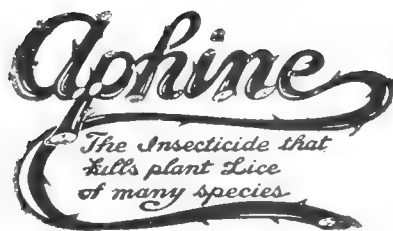
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(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

NOVEMBER, 1923

No. 11

Things and Thoughts of the Garden

WILLIAM N. CRAIG

NOVEMBER to many is a very sad month as "chill November's surly blasts have made fields and forests bare," but the oaks and some other trees still have high colorings and in the shrubberies there is cheer and brightness in plenty on the many fruiting shrubs. In looking over a large number of these berried plants I have been struck by the lavish display of brilliant fruit on the common barberry, *Berberis vulgaris*, and if asked to name the shrub which in my estimation made the finest display I would unhesitatingly plump for this old, very common, and in many states, tabooed plant. One particularly brilliant effect was produced by planting quantities of this barberry with a background of tall cedars (*Juniperus virginiana*). *B. Sieboldii* is another tall growing variety which to the uninitiated would be mistaken easily for *B. vulgaris*; its fruit is very handsome and persists until Spring, and its foliage, when unfolding is of a purplish color and assumes a brilliant red color in Fall. The Japanese barberry so heavily used for hedging purposes, when planted out so that it can have ample room to spread, makes a striking effect. One of the original plants of this very popular shrub grew until recently along the Arborway in the Boston park system near the Forest Hills entrance to Arnold Arboretum, and was the grandest specimen I have ever seen, being over 15 feet across and of perfect form. It seemed something of a crime to remove it, but autoists claimed that it obstructed their vision, hence its removal. There are many other barberries including handsome new varieties from China, some of which are evergreen even as far north as Boston in an extraordinary Winter and others are notable for their dark, glossy foliage or brilliant fruits. *B. Koreana* has very handsome fruits; *B. verruculosa* has violet black fruits and has withstood a temperature of 20 below zero. *B. Gagnepainii* also carries blackish colored fruits and proves an evergreen in the more balmy states. The very handsome *B. Sargentiana* carries black fruit and its foliage is particularly handsome. It is not in trimmed hedges that we can secure the full beauty of the *Berberis*; in their mutilated condition they can fruit but moderately, and bear mute testimony to what a fine showing they would make at this season if allowed to grow naturally.

* * *

Speaking of dark colored fruits, there is no shrub which makes a finer fruit display now than the common privet, *Ligustrum vulgaris*, the fruits of which are produced in great profusion and persist right through the

Winter. A great many people plant hedges of the Japanese privet (*Ligustrum ibota*) or the California privet (*Ligustrum ovalifolium*) which later is a much more tender variety, and ignore *L. vulgare* and its great value as a shrubby plant both for its bloom and its fruit. Of the shrubs producing dark fruits, one of the most striking is unquestionably *Symplocos paniculata* the bright blue berries of which instantly attract attention. At this time the large bunches of bright red fruits carried on the high bush cranberry (*Viburnum opulus*) excites our admiration, and several of the other *Viburnums* are heavily fruited. By no means to be despised are the masses of *Symphoricarpos racemosus*, the common Indian currant, whose purplish red berries remain fresh all Winter, while the large oval pure white fruit on *S. racemosus*, the "Snowberry," are already becoming discolored, although many remain plump and white until Christmas.

* * *

How handsome now also is the *Euonymus*! *E. Europæus*, commonly called the "Burning Bush," makes a truly glorious showing with its wealth of brilliant fruits which are really seed pods, and almost smother the plants. The "cork barked" *Euonymus* still retains some of its brilliant leaves in early November and its richly colored fruits give the shrub a firelike appearance. The evergreen, *E. radicans vegetus*, also makes a wonderful fruit display now where it has not been subjected to shearing and is in a strong light. The other forms of *E. radicans*, like *Carrieri*, fruit much more sparsely than *vegetus*.

* * *

Some of the *Cotoneasters* have dropped their fruits but on *C. horizontalis* the rich red fruit will remain all Winter. Some of the *Cornus* family are now very attractive, and if to these are added the many *Cratægus* or hawthorns, the ornamental crab apples, the Japanese quince, *Cydonia japonica*, it can readily be seen what brilliant and varied fruiting effects may be had by making judicious plantings. I should have included the winterberry, *Ilex verticillata*, whose rich orange fruit is always in great demand at the holidays. And what is more beautiful than the common woodbine, *Ampelopsis quinquefolia*, hanging over a wall loaded with its bunches of rich blue fruits? And the various rose species fruit abundantly and in some cases remain bright until Spring approaches. This is by no means a full list of fruiting plants which give color effects, when foliage is scanty; but it may encourage some who

are lacking in plants which cheer as the season ends, and induce them to give more attention to them.

*

There are, and will no doubt continue to be, differences of opinion as to whether Fall or Spring planting of hardy roses gives the best results. At one time I was very much prejudiced in favor of Spring, but plantings made in the Fall of recent years have convinced me that Fall planting gives far more satisfaction. From Spring plantings, I am satisfied that in New England from one-fourth to one-third of the plants set out either die or merely exist. This is not strange when it is remembered that nearly all the Spring planted stock has been carried over Winter in storage houses and is, in too many cases, badly dried up and shrivelled. It is hardly surprising that, unless in the hands of those who will give it the best attention, a large proportion will die. Nurserymen are swamped with orders in Spring and it is often very late when orders are filled. It is quite otherwise in the Fall when nurseries are rarely overtaxed to keep abreast of orders and when all roses are dug from the field as wanted and received by the buyer in a plump, fresh condition.

In my experience, the last half of October and the first half of November is the ideal time to plant hardy roses in New England and no doubt the planting season could be very well extended further south. Given well prepared ground, careful planting, which means spreading out the roots well and firming the soil thoroughly about them and also deep planting, and before the ground freezes up-hilling each plant with soil and later furnishing a mulch of leaves, meadow hay, straw, or litter, there will be a far smaller percentage of deaths from Fall than Spring planting. There is simply no comparison in the growth of the two plantings. I have taken up plants when hilling them up and have been pleased to see the quantities of white fibrous roots the Fall planted stock, was sending out. I have no doubt, however, that most of the readers of the GARDENERS' CHRONICLE OF AMERICA will continue to depend on Spring planting of hardy roses. If so, I should counsel them to buy their plants even thus late and bury them over Winter on a well drained piece of ground, so that they can be planted just as soon as the ground is open in Spring. Try this plan, and buy a few others in Spring and if you will carefully compare results you will be ready to both buy and plant your roses in the Fall of another year. Hybrid teas can be just as successfully planted in Fall as hybrid perpetuals, polyanthas, climbers and rugosas.

*

There has been an unusually good demand for all hardy bulbs this season. The Breeder and Darwin tulips are being called for more than ever and the fact that the powers that be in Washington have temporarily relented and permitted the importation of snowdrops, scillas, chionodoxas, and a few other bulbs which have been debarred for a year or two and which no one seems to be able to produce here, is good news to many garden lovers. Most of these bulbs look best when naturalized in grass land where the grass will not be cut until the foliage on the bulbs has matured, and in planting them they should be scattered by the hand and planted where they drop in order to look natural. The short trumpet *Narcissi* are much better for naturalizing than the big trumpet sorts. Of the latter, such old sorts as Emperor, Empress, and Princes, look well and persist from year to year, while such kinds as Henry Irving, Golden Spur, and Glory of Leiden prove unreliable. The short trumpet sorts look much more pleasing in a naturalized state than the sorts just named. Of the older sorts which last well from year to year I would select *Poeticus*, *Leedsii*, *Mrs. Langtry*, and *Barri* conspectus which are hard to beat. Not many realize how

splendidly the Darwins succeed in grass, and they do not run out as quickly as might be imagined. A tulip which succeeds especially well in grass is the brilliant *Gesneriana spathulata*; perhaps too high a color to suit many but suitably located it will be found hard to beat. One of the very best bulbs in grass is *Scilla* (*Puschkinia libanotica*) which increases very satisfactorily, and should be more largely planted. *Fritillaria meleagris alba* is another bulb which should be more planted in this way.

So far I have been unable to learn of any American grower who has succeeded in making a success of the field culture of scillas, chionodoxas, galanthus, fritillarias and others of the "dangerous" bulbs which have been debarred for several years, but are now temporarily procurable. Seeing the keen delight amateur gardeners obtain from the culture in even a very small way of these lovely little early flowering bulbs and the fact that their commercial culture seems to be too much for our hardy bulb specialists, I hope the Federal Horticultural Board will change its attitude and permit these simple, early flowering and popular bulbs to come in unrestricted hereafter. They are our first harbingers of Spring, and we can ill afford to dispense with them.

*

A friend who is superintendent of a large private estate in New England, and who has just returned from an extended tour of Great Britain, finds that the great war in no wise decreased the love of horticulture in the people of that island. He attended some of the largest flower shows, including Shrewsbury, Glasgow, London and Liverpool and the quantity and quality of the exhibits as well as the tremendous crowds of garden lovers who attended them amazed him. This gentleman says that the Glasgow show was the greatest of all, even surpassing Shrewsbury, which latter had 100,000 paid admissions on the second day. When we stop and reflect that this attendance probably equals, even if it does not exceed the gross attendance at all our Spring exhibitions or all our Fall shows combined, it is easy to see that the flame of horticultural enthusiasm is undimmed over there as yet. Another statement made by my friend was that when it comes to staging roses, carnations, sweet peas, phloxes, groups of herbaceous plants, and vegetables effectively, we know practically nothing in America. In mass production we stand high, but when it comes to arrangement we are simply not in the same class as our cousins across the ocean. It is good to have a little conceit knocked out occasionally, and I wonder if we had suffered as they have, and still are suffering, if pessimism and not optimism would not prevail in horticultural circles here.

*

Albert C. Burrage, president of the Massachusetts Horticultural Society as well as of the American Orchid Society, visited 17 leading orchid establishments on the European continent recently while visiting there. I asked him what impressed him most, and he said the remarkable cleanliness and general thrift of the bulk of the establishments visited and the tremendous culture of *Cymbidiums*. At one big commercial plant, house after house of these plants was seen, including almost numberless quantities of seedlings of the very best crosses. The owner stated that with a return to more normal conditions in Europe they had faith that there would be an enormous demand for these plants which could be grown fairly cool, flowered freely, and produced flowers of great lasting qualities. It is evident, therefore, that *Cymbidiums* are destined to be one of the great orchids of the near future, and the producing of species which

(Continued on page 273)

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

A GARDEN, even in such a chilly period of the year as late November and early December, has more or less attraction for mankind. I have often wondered why we are seemingly so closely wedded to a garden, but yet, why should any of us marvel, knowing that the Creator planted a garden and that he placed man in it. Furthermore, from the wording in the original language, and from some little study I have made of the roots of the words used, I am persuaded that at least the body of Adam was Yotsar, translated formed, from the soil of the Garden of Eden. Man's body was not a direct creation like his soul and spirit, but was framed or formed from material then existing, the dust of the ground. The word Aphar, translated dust, is a refined sort of word and according to some lexicographers might be translated clean soil, or in other words that kind of garden loam that the gardener delights in when planting time comes, and does not hesitate to handle with bare hands freely. I venture to say here, that our scientific friends, before they swallow the evolutionary theory as an absolute certainty, would find it quite an interesting study to examine the various renderings, given in lexicons, of roots of the words used in the account of the creation of man, as given in Genesis. If what I have hinted at here has any foundation of truth in it, and I believe it has, is it any wonder that we all love a garden, seeing that our bodies are a part of the material that plants are planted in? Some of my readers will be accusing me of being like the two nations described by Carlyle in his Rectorial address to the students and friends of Edinburgh University when he said, "The two finest nations in the world—the English and the American—are going all the way into *wind and tongue*," so let us get into our garden for practical work.

The growing season is now practically over. Frost has laid its icy hand on nearly all outdoor flowering plants. Here and there, in some sheltered, sunny nook, some flowers will be struggling to raise their faces to the sun, but for all practical purposes outdoor flowers are gone. As long as the soil is free from hard frost, put all bulbs that are to be planted outdoors into the ground as quickly as possible. As a rule, unless the herbaceous borders have been given a general overhauling, digging will be deferred until Spring. However, after the tops of the plants have been cut and laid aside, until the ground freezes over quite hard, a good close hoeing may be given, leveling in any depressions that may have formed during the Summer, and at the same time removing any weeds that may have been overlooked.

Chrysanthemum plants that have a place in the borders for Fall display should be lifted and stored in a cold frame during the Winter. Some varieties are perfectly hardy, others are not, so it is advisable to take no chances with them. Allow the ground to become frozen quite hard before any covering is done, and then only enough to keep the soil from thawing out until Spring.

Some gardeners complain of having difficulty in bringing *Anemone japonica* through the winter. It should be planted in well drained soil and well covered with at least a foot of leaves, or some such loose litter. Where this has been done it winters well. The greatest trouble we find with this lovely plant, as I mentioned in last month's notes, is in having it cut down with early frost before it is half through its flowering period. *Incarvillea*

Delvayii, we also find, needs Winter treatment similar to *Anemone japonica*.

Roots of *Dicentra spectabilis* may be lifted and stored in some place where they can be reached during Winter. They force well and are a lovely color when in flower. The dwarf Larkspur, which also does well, forced in early Spring, can now be had in various shades of blue and white. There is no doubt but that what is called "Blue Butterfly," and other names, is only a form of *Delphinium Chinense*. It is deceiving to place such things among annuals in catalogs when they are really perennials and may be used as herbaceous plants.

It is well to erect windbreaks in front of *Rhododendrons*, if they are planted in exposed positions. Strong sunshine is also bad for them. In this latitude they grow better when planted in a position where natural plantings of trees shelter them from the northwest, and enough on the south and east to break the strong rays of the sun, especially toward Spring. It is well also to have them thoroughly watered before the ground freezes over, especially after such a dry season as we have just experienced in and around Boston. When raking leaves, work a good covering over the *Rhododendron* bed. It would seem from experience that this is the natural food for them, but we believe it can be also overdone. We do not believe in heaping the leaves up the stems as we have seen done.

All evergreens should be well watered before the ground freezes over if they are expected to winter well.

There is no doubt that the best protection for roses, especially the hybrid tea forms, is loam. However, very few of us nowadays can afford the time to devote to such an elaborate covering as is made by one or two of our neighbors. We can only hurriedly draw the loam up around the plant and fill in with leaves or straw *maure*. The result of this is that our plants are much more dwarf than those that have been laid over and completely covered with loam. Standard Roses are very effective in certain positions, but in our climate, unless they are laid over and well protected with loam during the Winter, they will not prove much of a success.

Specimen trees, whose habits make them liable to be weighted down with snow, ought to be supported and tied in such a manner as will not cause them to lose their shape.

Boxwood is another plant that often suffers during Winter. Some use a covering of straw, others use a screen of burlap on the sunny side, but in the latitude of Boston we have seen the plants damaged either way, and those that were left without protection come through as little damaged as those that were protected. There are so many factors which enter into the cause of Winter killing that it is rather hard to form a set opinion. For instance, we have seen with the native Juniper, one which came through all right, and a plant alongside which was killed outright. They were only a few feet apart and growing apparently under identical conditions.

There is still plenty of work to be done among the vegetables. Cabbages will have to be stored; they keep well outdoors buried head down and covered with leaves or other litter. A few heavy branches laid over them will keep the wind from blowing the covering off.

Celery is the real standby in Winter and it should be protected before heavy frost sets in. In a well drained piece of land it keeps in the trench that it is grown in, if covered over to a good depth with straw or salt hay. Of

course, it is easier to reach in a frost-proof cellar, but if stored thus, in sand, the roots must be kept fairly moist and air admitted whenever the weather is favorable to do so.

Onions may be cleaned as soon as they are thoroughly ripened and spread out thinly on airy shelves; the building in which they are wintered should just be kept above freezing point.

Brussels sprouts are improved in flavor by a little touch of frost but before they become too wilted with freezing should be protected. Stored cauliflowers need every attention as regards airing, if they are expected to keep well.

There is still time to lift roots of parsley and pot them, or plant them out on a bench; however, seeds should be sown right away, if a supply is to be kept up, as roots lifted from outdoors soon run to seed.

Do not let the time slip by before the French Globe Artichokes are well protected.

Parsnips winter best in the ground where they are grown. We remember only one Winter in thirty-three years when they were injured by frost, and that year we had very little snow; the glass went twenty-four below zero, which is a very unusual occurrence in this locality. A part of the planting may be covered with leaves, or other litter, so that a Winter supply may be obtainable when the ground is frozen.

Do not cover the Strawberry plants until the ground freezes quite hard, and on no account put on a heavy covering. They winter far better if they remain in a frozen condition, and they are like many other plants in that good drainage is essential. We have had very fine success by having a good width between the rows, and before the ground freezes hard by running a deep furrow on each side of the rows, keeping about nine inches away from the plants.

Lettuce in frames needs plenty of air; the heads ought to be quite well formed before it is necessary to place the sashes over them.

Tomatoes that have been grown in pots for Fall use should be well covered with green fruit. A sunny position in a greenhouse, with a night temperature close to sixty degrees, is necessary to ripen them.

Keep collecting good horse manure for a successional crop of mushrooms. The earlier beds will now be bearing, and watch carefully that they do not get too dry. Water with rain water if it can be obtained, taking care that the chill is taken out of it. As the bed shows signs of exhaustion, a large teaspoonful of nitrate of soda may be added to every three gallons of water used.

Give the pot Strawberries that are to be forced about ten degrees of frost before storing them in a cold frame, or if frame space is not available cover them over with straw in some convenient corner where it is easy to get at them when the time arrives for forcing a batch.

In December the outdoor fruit trees may be sprayed for scale and other diseases that affect the wood; also, if any tree is going too much to wood and not bearing, tunnel under it and root prune it. Any root that is inclined to run straight down into the soil cut back quite hard.

IN THE GREENHOUSE

The greenhouse will now claim quite a good deal of time and attention, as any neglect during the dull months is sure to be felt later on. Nothing should now be overwatered, rather, keep the plants on the dry side until the sun begins to get stronger. On all mild days air freely, and if at all possible, use a little extra fire heat rather than neglect this very important operation. A weak, soft growth will be the result if the houses are kept closed to save a little extra fuel. I have been watching oil heating

quite closely during the past year, and, from what I have learned from close observation, it is away ahead of coal as a fuel. I am not referring to crude oil, but to one of the more refined grades. It practically takes care of itself when properly equipped and so far is more economical. How long this saving will continue I suppose will depend upon demand and monopoly.

The Chrysanthemum by the last half of November will be on the wane, and no time should be lost to clear the roots off the bench so that the space may be utilized for a successional crop. Be sure and save enough stock for next year. Each variety may be set close together in a cool house. We use a cold frame but, of course, if early cuttings are wanted for specimen blooms next year, that would be out of the question, as some varieties are slow at throwing up basal growths, and it is necessary to keep them a little more comfortable than in a frame. Don't cut the stems too low. Dust the crowns with flowers of sulphur and powdered charcoal. As the blooms are cut, keep filling in the space gradually with Antirrhinums, Dimorphotheca, Lupins, Didiscus, Stocks, and any other annuals that will give variety for cut flowers later on.

If the Camellias have at all done well they will now be covered with buds, in fact, a little thinning out would be helpful if larger flowers are desired. During the dull, short days watering must be done more carefully, as overwatering is harmful to the roots at this season. Any plants that need a shift I believe should be shifted at this season, as I find that the root action of the Camellias is about as dormant at this part of the year as at any other period and less injury to the points of roots is liable to happen in the potting operation. Be sure and not overpot these plants, and use a good fibery upland loam, preferably a little acid. A good fibery peat will give quicker growth but I do not think they set buds quite so freely as in loam.

Begonias of the Lorraine type will now be well advanced to the flowering stage. See that they are properly supported with light stakes. We have found that B. Cincinnati, Melior and Mrs. Peterson are better keepers than the original Lorraine, although they do not attain to such large specimens in the same length of time from a leaf cutting. The Cincinnati raised ones may be had over quite a long period if kept in a cool, airy house after they have set their flower buds. There is no doubt that the Socotrana tuberous rooted hybrids are the finest Begonias we now have in cultivation. There is quite a pleasing range of colors among them, and for a private greenhouse they are among the choicest of plants. A good house is necessary to grow them in and a temperature around 65 degrees should be maintained while they are growing. They also need to be kept thoroughly clean, as regards insects. Leaf cuttings of Begonias may be potted along as soon as they throw up a shoot from the base.

Calla lilies will now require attention regarding food for they are heavy rooters. We grow ours in nine-inch pots and find that occasionally a handful of bone meal scattered on the surface of each pot speedily disappears, the roots absorbing it very quickly. We also water with manure water weekly. They like to be kept moist at the roots and syringed under the leaves on bright mornings.

Cinerarias and Schizanthus must not get root bound until the desired size of pot is attained, which for large specimens is generally about a nine or ten-inch pot. A night temperature from forty to forty-five degrees is high enough, and during the day a rise of about fifteen degrees. Keep them in full sunshine until about March the first. We generally pinch the heart out of the Cinerarias once, and Schizanthus we stop four times before allowing them to run to flower.

Cyclamens for Christmas need to be kept in a night temperature around fifty-five degrees to have them in fairly good flower for that season. For Spring use it is necessary to have a batch grown under the cool method and to remove all flower buds until after the turn of the year.

Keep the plants of *Erlangea tomentosa* in a shady position, as the flowers bleach out and lose that lovely lavender shade which all admire.

Many tropical plants, such as *Allocacias*, *Marantas*, and plants of that nature, should be kept on the dry side for the next month or two. If this rule is followed, they start with more vigor in Spring. *Ardisia crenulata* is a handsome berried plant for Christmas, though they are slow growers, requiring about three years from seed to form a desirable plant. They are tropical and need a much higher temperature than *Solanums*. They are not so free of insect pests, being very subject to scale.

The early *Calanthes* are well advanced towards flowering. See to it that they remain moderately moist until they have finished this stage.

Cypripediums should be kept about 50 to 55 degrees at night, that is, the cooler growing varieties, such as the old standby, *insigne*. *Cypripedium insigne sanderae*, *spicerianum*, *caudatum*, etc., require a little warmer temperature. They all need to be more carefully watered at this time of the year.

Cymbidiums do best where grown cooler than was formerly believed; they are strong rooters when thriving well and may be fed liberally when growing.

Miltonia vexillaria will now be pushing up its growths. However, careful watering is necessary until they begin to root freely from the new growths. Spray them on bright mornings occasionally with some safe insecticide to prevent thrips from getting a foothold.

Odontoglossums are in different stages of growth. They stand all the light possible for some time, and like plenty of moisture in the atmosphere. Look out for slugs, crickets and cockroaches. Cotton wool is not a sure remedy for protecting the flower stems; it is better to have plenty of lettuce leaves scattered around, or any other of the usual traps that capture these pernicious pests.

Cattleya Percivaliana and other hybrids belonging to this family will have finished their growth and should be kept well up to the glass until they begin to open their flowers.

Grapes that have shed their leaves may be pruned. It is better to do it now, as they are not so likely to bleed when they are started into growth. All indoor grown fruit plants keep cool and free from insects at this season.

HIBISCUS

FLORUM AMATOR

THERE are twenty-eight species of *Hibiscus* (Rose Mallow), some of which are herbaceous plants, other shrubs, and some, which grow in the tropics, small trees.

Most of these species are grown for their handsome, hollyhock-shaped flowers, and among the most beautiful of them all are the Meehan Mallow Marvels, hybrid varieties originating with Thos. Meehan & Sons, and the *Hibiscus moscheutos* hybrids (Giant-flowering Marsh Mallows), originating with Bobbink & Atkins.

It is not, perhaps, well known that some species of *Hibiscus* are among our economic plants; the long ribbed pods of *Hibiscus esculentus*, whose seeds are sold under the name of Gumbo and Okra, are used in cookery; *Hibiscus cannabinus*, widely grown in the old world, furnishes a coarse fibre which is known as "Bimlipitam jute"; *Hibiscus Sabdariffa* (Jamaica Sorrel Roselle), is now grown considerably in Southern California, and Southern

Florida for the same purpose for which it has been long grown in the old world tropics; namely, its fleshy calyxes, which when cooked make a delicious cranberry-flavored jelly or sauce, and whose juice when extracted makes a cooling acid drink; *Hibiscus elatus* (Mountain Mahoe), and *Hibiscus tiliaceus*, West India trees, yield the Cuba bast used in tying cigars, and other goods; *Hibiscus Rosasinensis* (Chinese *Hibiscus*) flowers are reported to be used in some parts of the world for dyeing hair, and also for blacking shoes, hence its common name "Shoeblack plant."

The best known of the cultivated *Hibisci*, which are grown for their flowers are *Hibiscus syriacus* (Rose of Sharon), mentioned in the "Songs of Solomon," and of the wild species, *Hibiscus Moscheutos* (Swamp Rose Mallow), which grows freely in the marshes along the coast from Massachusetts to Florida, whose handsome, large, showy, rose-colored flowers appear in such glorious abundance in August and September, and which if grown in upland soil will give almost as satisfactory results as when growing in its native marsh.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 270)

will in time span the year may easily make them serious rivals of the *Cattleya* in popularity in America. A friend who only a few weeks ago inspected the noted collection of Sir George Holford at Westonbirt, Tetbury, England, from whence have come many of our finest hybrid *Cymbidiums*, and where 10 men are constantly employed in this famed amateur collection, says that several houses there contained nothing but *Cymbidiums*, and that they were in superb health. The same was noted at other orchid collections. Hence we can see that orchids are still popular abroad and *Cymbidiums* forging rapidly to the front.

* * *

A reader of the *CHRONICLE* in Pennsylvania writes to ask if it is advisable to transplant evergreens of a considerable size in November or December if the ground remains open. The only really safe way to move plants so late in the year is with frozen balls, and this may be very successfully done with not only evergreens but deciduous trees and shrubs as well as apples and other fruit trees. This is a method of removal very popular in states where frost is of sufficient severity and continuity to freeze the balls solid, and removal is best done when there is some snow on the ground so that the heavy balls can be more easily hauled to a new location. Holes of ample size should be prepared now, and trees to be removed dug around, and the balls undermined so that they can readily be removed when severe weather arrives. After removal, straw or litter should be packed around the balls until planting time arrives in Spring. This is the only safe way to move evergreens late in the year.

Quercus conferta, sometimes called *Q. pannonica* and the Hungarian Oak, is unusual among Oaks in the clear canary yellow color of its ripening leaves. This is the handsomest of the European Oaks which has been tried in the Arboretum in which it has grown rapidly and promises to become a large and valuable tree, distinct in its large, thick, lustrous, deeply lobed leaves. It is a common forest tree on low mountain slopes and hills in southeastern Europe where it is widely distributed and grows sometimes to a height of a hundred feet and forms a trunk from three to four feet in diameter. The Hungarian Oak is unfortunately still a rare tree in the United States—*Arnold Arboretum Bulletin*.

Notes From An Old Country Garden

ARTHUR T. JOHNSON, F.R.H.S.

ONE of the most trustworthy little plants in giving us masses of color as we pass into Winter is *Polygonum viviparum*, which in almost any damp, open spot in woodland or rock garden makes hummocks of rosy-pink flowers that are very attractive and last several weeks. Though a Himalayan this is quite hardy anywhere with us, as is its "big brother" from Bokhara, *P. baldschuanicum*. This latter is also a late bloomer and is not only valuable on that account but its extraordinary vigor as a climber has earned for it a great reputation. The Russian Vine, as it is sometimes called, will often make 20 feet of growth in a single season, thus soon adorning a pergola, wall, or old tree with its abundant pale green foliage and fleecy panicles of pinky-white flowers. It enjoys a rich, loamy soil with full exposure and, given the right conditions, there are few climbing plants that will so quickly cover its support as this one.

Of the ornamental currants and gooseberries in cultivation here, mostly of American origin, a good word must be said at this season for *Ribes aureum*, the Buffalo Currant. This, despite anything it may lack as a flowering shrub, makes the fullest amends by assuming a most brilliant color before the leaf fall—an intense crimson scarlet. Nor is it to be despised at blossoming time, for its comparatively large golden yellow blooms are unusual and pleasantly fragrant. We also grow a variety of this called *aurantiacum* whose inflorescences are a bronzy-orange tint.

The best of the whole genus *Ribes*, however, is undoubtedly the old Flowering Currant which was discovered in western North America by Menzies in 1793 and sent over by Douglas in 1826. Though one of the commonest it is still regarded among the choicest of our early-flowering shrubs. There are many good varieties of this fine old currant but it is questionable whether they are much superior to the type. Of these the white one (*albidum*) and the almost blood-red form (*splendens*) are perhaps the most noteworthy. We grew the above in our woodland garden under thin deciduous trees, and, in a sunnier, warmer place, the beautiful *R. speciosum* of California, with its drooping, fuchsia-like flowers, is given a home.

The various members of the *Pieris* (*Andromeda*) group are interesting at this time of year for they are now putting forth their elegant sprays of buds which will break into flower in early Spring. The most striking of these is undoubtedly *P. formosa*, a shrub of some 8 feet, with large leaves like a rhododendron and wonderful racemes of urn-shaped flowers, like magnified Lily-of-the-Valley. This splendid subject, which comes from the Himalayas, is, unfortunately, not quite hardy, but it will, nevertheless, put up with what are to us fairly severe Winters. The pink-flowered *P. japonica*, a very lovely species, is more sturdy, but even it is liable to get its flowers nipped by Spring frost.

The hardest of the above genus commonly grown with us is undoubtedly *P. floribunda* which came to us from the southeastern States of America in 1800, and this can always be depended on as an every year bloomer. The dark green foliage and terminal sprays of pure white blossoms of this species are very effective, but the latter, as is the case with those of most others, should be seen indoors as cut flowers to be appreciated at their full value. *P. nitida*, also a native of the Southeastern States, is another species of about the same stature (6 feet) as *floribunda* but it is too tender for most places with us, hence

its comparative rarity here. Then there is *P. mariana* of the Eastern United States. This, unlike the rest of the genus, is a deciduous shrub and one of considerable merit. But though long known to a few gardens it has never become really popular with us. This is difficult to explain, for *P. mariana* would seem to be absolutely hardy since it is, or was, largely grown at the Arnold Arboretum, Boston, Mass., and it is a late bloomer, not opening its pink-tinted, white flowers until June.

That delightful little evergreen shrublet from the lofty mountains of Central Europe, *Polygala chamaebuxus*, can always be depended on to produce a good crop of bloom in the Fall as well as in Spring. We grow it in cool, shady places in the woodland and rock garden where it makes cheerful carpets of dark, glossy-green, box-like leaves, the plant varying in stature from 3 to 9 inches. The pea-shaped flowers in the typical species have creamy white "wings" and a lemon-yellow "keel." But the variety, *purpurea* (*grandiflora*), is not only more robust and larger in all its parts, but its blossoms have wing-petals of bright rosy-lilac, the "keel" being orange-yellow, often shaded with a pink flush. This charming little woodlander is quite hardy and thrives in any well-drained loam, vegetable soil, or sandy peat. It has a preference for a cool root-run and in its native home flourishes on calcareous formations.

The Chinese Leadwort (*Plumbago larpendae*) is another dwarf, sub-shrubby plant that is a regular yearly bloomer from September to Winter. This plant enjoys a warm corner of the rock garden where the soil is light and where there are stones under which it can send its wiry roots. In such conditions it has lived in this garden for years, on one occasion enduring as much as 27 degs. F. of frost, and every Fall it crowns its 8-inch growths with a cluster of flowers, each nearly as large as a 5-cent piece, and of a most vivid cobalt-blue. Then, as the blossoming season passes, the foliage assumes brilliant shades of crimson and orange. This plant is now botanically known as *Ceratostigma plumbaginoides* and there is a bush form, *C. Wilmottiae*, which grows to a branching shrub of about 2 feet.

Enjoying a similar kind of root hold and situation as the Leadwort, and not unlike the latter in habit, is the Californian Fuchsia (*Zauschneria californica*). This beautiful plant also helps to give color to our autumnal garden, its bright crimson-scarlet flowers and gray-green foliage being very attractive. Those readers who know the flora of California will not need reminding that in its native land *Z. californica* grows under very diverse conditions and that it varies very considerably in habit, foliage and flower. The form which we in Britain usually try to obtain is an early-flowerer (July onwards) with silky, pale green leafage and blossoms of an intense scarlet. Like the Leadwort, *Z. californica* may be cut to the ground at the end of the season which enables one to give it protection without difficulty where this seems desirable.

The Sweet Gums (*Liquidambar*) are well worth a place in any garden where they can be given sufficient room, for the foliage is extremely brilliant at this season. The most popular species over here is *L. styraciflua* from the eastern United States. This assumes such vivid tints that it is frequently taken to be a maple. The shape of the leaves is also much like that of a maple and a well-grown tree is an object of great beauty.

Another tree of much smaller stature which is deserving

(Continued on page 281)

Garden Design

PERCY S. CANE in The Garden

NEARLY all new grounds, even though quite small in extent, are composed of separate gardens, each having its own particular character, and it is in this subdivision and the proper contrast and relation of the different parts that much of the art of garden-making consists. Terraces, lawns, rose gardens, herbaceous borders, and rock and wild gardens must all be correctly proportioned to the total area of the site.

As well as being of suitable size, gardens should be well placed, that is to say, each particular garden should have the proper aspect and be in the best place for that particular garden. Rose gardens should be sheltered from the north and east and yet have a fairly open aspect. Neither the rose garden nor the tennis courts should be too far from the house.

Much has been written about the respective merits of formal and informal (or "landscape") gardens. Generally, gardens will be less formal in treatment as they are farther from the house, although it will often surprise and please to come unexpectedly upon some small formal garden set amid the more natural parts of the grounds. Gardens of shrubs and lawns, and so-called wild gardens may, if properly planned, be some of the most beautiful and attractive of all.

Let us start from the house and consider planting and the nature of it for the different gardens. Not too far away one should have color, color for the greater part of the year and a lot of it, and here let me say that if one's gardens are set in woods or trees so that one has backgrounds of green, one cannot well have too much color, but if the surroundings are walls, one needs to be careful.

Near the house there must be finished planting with nothing untidy about it. Flowers differ in quality, and near the house one must feel no jarring note between the tastefully decorated interior, and gardens that may often here be something in the nature of outdoor rooms.

For the permanent planting use such plants as Delphiniums (blue Delphiniums may often be used where blue Lupins would seem too coarse), Liliums, perhaps Tree Lupins, the various Artemisias (Southernwoods), Lavender, Mimulus, some perennial Asters, Campanulas, Scabious, Pentstemons and numbers of other plants.

The plants which constitute the permanent planting should be skilfully grouped to form a setting for the bedding plants and biennials that will be used for their continuity and freedom of flowering, and for the added touch of richness they will impart. In the Autumn one may plant great masses of Darwin Tulips midway or rather back in the border, so that lower plants in front may partly hide their stems and act as a foil to their lovely colors. As well as Tulips, one could have Narcissi, but this family is really more suitable for the more natural parts of the gardens.

Numbers of Hyacinths can be planted in front to grow close to the paving or turf, always in masses of one sort by itself, and Wallflowers, but some of these are of cruder coloring and must be carefully placed. Violas can be treated as permanent residents and left undisturbed until they become weak and straggly and need replacing, and they will flower so early as to be in bloom with the Tulips, that is, if they are planted soon enough. Double white Arabis, Myosotis and Aubrietias in their colors that seem to tone with everything will also be planted for early Spring effects.

The fresh delicate greens of the permanent masses of Delphiniums and other plants will, all the time that they

are growing be the best possible background for the bulbs and other early flowers, and after these have finished there are a host of things to choose from for the Summer. Tree Fuchsias are always useful, they need little care during the Winter—to keep them secure from frost is enough—and they should be grown into as large plants as possible, Begonias (both tuberous and fibrous rooted), Heliotropes, Carnations, Marguerites, Zonal and Ivy-leaved Pelargoniums ("Geraniums"), almost all of the often despised bedding plants can be used here with the best results. Only remember always that they are to be grouped and never arranged as formal bedding, and grouped with due regard to the scheme of planting as a whole. November may seem an unsuitable time to talk of Summer bedding, but it is easy now to visualize results for future seasons.

To turn to more permanent planting—the planning of which is as interesting as it is hoped the results will later on be beautiful—so far as herbaceous plants are concerned it is well first to decide the height and habit of growth that is required to obtain the effect desired, and carefully to consider the color scheme as a whole before actually selecting the plants to be used.

For reds one should be careful in the choice of plants; some are good natured enough to tone with anything, but many reds are inclined to be crude unless carefully placed. Blues are always welcome, and go with nearly every other color except perhaps some reds and browns. Browns and golds and yellows and bronzes may be grouped to make harmonies of their own. Heleniums, Gaillardias, Torch Lilies and the bronzy foliage of some of the Chinese Pæonies can be most effective. To arrange interesting and beautiful groups in the borders is an art in itself. Having decided the color scheme as a whole, one may proceed to carry this out with a succession of groups each lovely in itself, and yet all subservient to, and helping towards, the general effect.

It is important to have as much green as possible for the backgrounds. In Nature one sees nearly all color as a relief against green in some or other of its many shades. The vision of a park with reds or scarlets as the predominant coloring is too hot to think about, yet it is not unusual to see something like this in small gardens, where bricks of buildings supply the red background with other colors piled on thickly.

In herbaceous borders it is better to err on the side of having the groups of one sort of plant too big rather than too small. Delphiniums, Asters, Lupins, Hollyhocks, Anchusa italica to be most effective, should be in groups as large as the size of the borders will allow. It goes without saying that most of these tall-growing plants will be at the back of the borders. Some of the larger plants should, however, be brought well to the front or the border will be too regular in outline. Also it must be remembered that form is even more important than color or, at all events, that form comes first and color should be built on to it. It is the use in the best possible way of the wealth of materials, the interweaving of the threads of form and color, that, to the artist, makes the construction of gardens so interesting an occupation.

Nearly everyone has his or her favorite colors and flowers, but some colors can be more generally used than others. Blues can be used almost anywhere, and in a blue border or garden, if one's space allows room for it, can be included as many as possible of its shades. If one does have a blue garden, one should see that it is set in green

(Continued on page 277)

Electric Light Speeds Up Plant Growth

E. S. MACKAY



Plants Grown at Twice Their Normal Rate with the Aid of Six 500-Watt Electric Lamps Turned on From 8 P. M. to 1 A. M. During Six Weeks' Test.

IN a six-weeks test just completed by the Westinghouse Lamp Company, in co-operation with Peter Henderson & Company, at the Henderson proving grounds at Baldwin, L. I., the value of electric light for accelerating the growth of a variety of plants was conclusively proven. Many of the specimens subjected to electric light grew during the test upwards of twice the size of similar plants receiving daylight only, and were considered by experts to be from fourteen to twenty-seven days in advance of normal growth. Of the plants selected for testing, flowers and vegetables having large leaf surfaces such as lettuce and endive, responded most readily to the stimulating effect of the light. The tests indicate

that electric light will be useful to florists and gardeners in forcing flowers for definite dates such as Christmas and Easter, and in reducing the time required for seedlings to grow large enough to permit transplanting.

"No use of artificial light, in addition to that which involves the eye, can be of greater benefit to humanity than this recently developed application to stimulating the growth and development of plants and vegetables," says Samuel G. Hibben, National Secretary of the Illuminating Engineering Society and Manager of the Illumination Bureau of the Westinghouse Company, under whose direction these recent investigations have been conducted.

"In a general way we have known that artificial light influences the growth and flowering of certain plants, but no well organized research work has been done until recently to prove whether the application of electric light was commercially feasible as a means of supplementing daylight. We now know that this stimulation of growth does not necessarily require the same intensity of light as daylight, nor does it seem necessary to reproduce exactly the color qualities of daylight. We know furthermore that plants must rest, and that the application of artificial light is advisable over only carefully chosen hours when daylight is inadequate.



4X Gypsophila Elegans, Sunlight and Artificial Light. 4Y Gypsophila Elegans, Sunlight Only.



A-X Cyclamen, Sunlight and Artificial Light. A-Y Cyclamen, Sunlight Only.

"What this development means to the agriculturist is hard to predict. It seems, however, to promise a means of doubling the speed of development of many species, and bids fair to enable the horticulturist to bring his flowers into bloom at the time when their market is at its best. This has all been made possible by the perfection of flexible and cheap sources of light, and in it are contained advantages that seem as tremendous in their benefits to humanity and as far reaching in their scope as anything which has happened since Luther Burbank developed the Shasta daisy or spineless cactus."

On the first of September twelve varieties of vegetables and twelve of flowers were sown in shallow (3 inch) boxes, or flats, as gardeners term them. The soil used was an ordinary light sandy soil such as is generally used for starting seedlings. Two sets of flats were sown, one set for growing under the electric light and one for growing without artificial light.

The following varieties of seeds were selected for the experiment:

Snowball Cauliflower
Easy Blanching Celery
Tender Green Bean

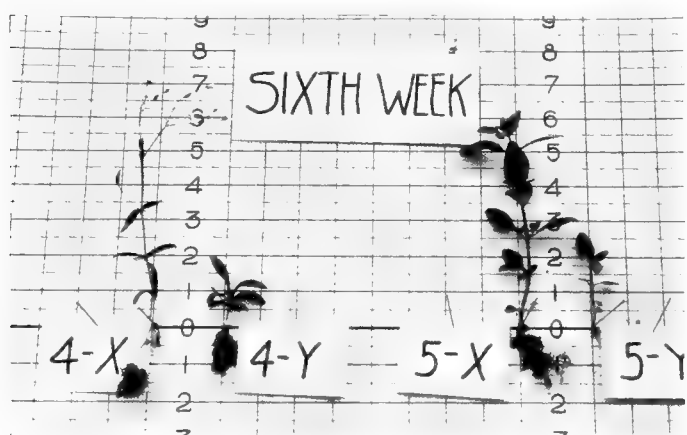
Transvaal Daisy
Orange Calendula
Blue Lace Flower

Bush Lima Bean	Baby's Breath
French Forcing Carrot	Snapdragon
Davies Perfect Cucumber	Lavender African Daisy
Butternut Lettuce	Impatiens
Scarlet Giant Radish	Mignonette
Egyptian Beet	Wallflower
Rocky Ford Muskmelon	Cinraria
Bonny Best Tomato	Begonia
Golden Heart Endive	Aster

Both tests were grown under identical conditions of heat and moisture on opposite benches, with the exception that one group received the additional benefit of the electric light while the other received no additional light other than that provided by Nature. When the electric light was turned on, an oil cloth curtain divided the one group from the other. The light was switched on every night at 8 P. M., and automatically shut off at 1 A. M.

Almost from the outset, according to J. A. Fiesler, of Peter Henderson & Company, there was a marked difference noted in the germination of the seedlings under the electric light. Germination was hastened in some cases as in the beans, celery, lettuce, and endive among the vegetables and calendula, gypsophila, antirrhinum, mignonette and wallflower among the flowers, to the extent of four to twelve days, depending on the variety.

The advantage gained with the advanced germination was maintained in every case through to the end of the experiment which terminated at the end of six weeks. In some cases there was no perceptible gain in growth, par-



4-X *Gypsophila Elegans*. Sunlight and Artificial Light.
 4-Y *Gypsophila Elegans*. Sunlight Only.
 5-X *Antirrhinum Giant*. Sunlight and Artificial Light.
 5-Y *Antirrhinum Giant*. Sunlight Only.

ticularly in the root crops including beet, carrot and radish.

That there is certain analogy between the radiant energy of sunlight and that of an incandescent electric light was definitely established by the fact that the chlorophyll in those plants which received the additional electric light was more active. The foliage presented a richer, greener, more turgid, and vigorous appearance than those that were denied the advantage of the additional light. Also in the case of the vine crops, cucumbers and muskmelon, the stems of the plants were heavier and stockier than the plants grown without the electric light. In this experiment, the fact was established that all plants presenting a large leaf surface are greatly stimulated by the additional electric light, as in the case of the leaf crops, viz., lettuce and endive.

Preliminary tests on the forcing plants by the use of artificial light were conducted by the Westinghouse Company at Columbia University, under the auspices of Prof. Hugh Findlay of the Department of Agriculture of the University. The results on such plants as Boston fern, Calla lilies, rose geraniums and others which are much in

demand by florists, were extremely favorable. In almost every case the plants grew taller, continued in bloom longer and were sturdier than those that did not receive the benefit of the artificial light.

Photographs are reproduced through courtesy of the Westinghouse Lamp Co.



6-X *Arctotis Grandis*. Sunlight and Artificial Light.
 6-Y *Arctotis Grandis*. Sunlight Only.
 8-X *Mignonette-Red Goliath*. Sunlight and Artificial Light.
 8-Y *Mignonette-Red Goliath*. Sunlight Only.

Two Westinghouse 110-volt 2-horsepower farm lighting plants were used in the Henderson experiments to generate power, in order to bring these tests within the reach of communities where central station power is not available, as well as those where current can be purchased.

GARDEN DESIGN

(Continued from page 275)

surroundings and, with the exception of, it may be, a little white, it should be kept to blues. Blue flowers with green turf and gray stone-walling are always beautiful together.

As in Eastern embroidery, one may, in parts of the principal borders, work up to a riot of the richest colors. Deep blue and purple Delphiniums, orange Lilies, crimson Pentstemons and Hollyhocks (crimsons are generally safe, but beware of scarlet!), apricot and yellow Day Lilies, with always plenty of green foliage, and the bronzy leafage of purple-leaved Plums and Pæonies will make a brave show. One must not forget that color is to be obtained not only from flowers, but that numbers of trees, shrubs and plants are invaluable for the coloring of their foliage.



6-A *Cucumber-Davies Perfect*. Sunlight and Artificial Light.
 6-B *Cucumber-Davies Perfect*. Sunlight Only.
 7-A *Lettuce-Butternut*. Sunlight and Artificial Light.
 7-B *Lettuce-Butternut*. Sunlight Only.

Collecting Orchids in Central and South America

THE orchid collection of the Missouri Botanical Garden has always been a notable one, and after the acquisition of the Brownhurst collection, through the generosity of the late D. S. Brown, it took first rank in this country for the number of varieties as well as quantity of plants.

The general public is apt to judge such an exhibition from the standpoint of color and quantity of bloom rather than the rarity of the plants, and for this reason it seemed desirable if possible to augment considerably the number

houses and in forests close at hand. In Yacopi, in the Departamento Cundinamarca, the villagers even presented a collector with forty cases of plants. A present-day collector, however, must rely upon the natives exclusively, making his headquarters at the nearest village and waiting with all the patience at his command for the return of the natives with the coveted orchids.

The best time for collecting *Cattleya Trianae*, according to Cyril Allen of Bogota, is during the dry season (November to March). The flowering season, "Varanillo" ("little dry season"), which is from the end of July to September, is then over, and if collecting is done during this period it is possible to select the best types.

Cattleyas do not grow in the hot country, but in the foothills of the Cordilleras, from 2,000 to 6,000 feet altitude, where the mean temperature is 65-67° F. Most cattleyas are entirely local in their distribution, certain species being confined to a small given region and disappearing completely when this area is passed. They inhabit the topmost branches of the Aquapa (Bombax), 150-200 feet in height, where there is plenty of sunlight. Even in the dry season they are subjected to heavy dews at night which more or less prevent shrivelling. *Cattleya Mendelii* has been found growing upon rocks too hot for the naked hand, suggesting that most cattleyas need abundant sunshine.

Cattleya Percivaliana grows much better upon rocks and cliffs overhanging streams than upon trees. Other cattleyas, such as *C. Trianae*, prefer the topmost branches of trees. They may be found in either the crotches or branches, upon the sides of the main trunk, or in many cases surrounding the limbs of the smaller branches where their roots tenaciously hold them fast against the strongest wind, often making it necessary

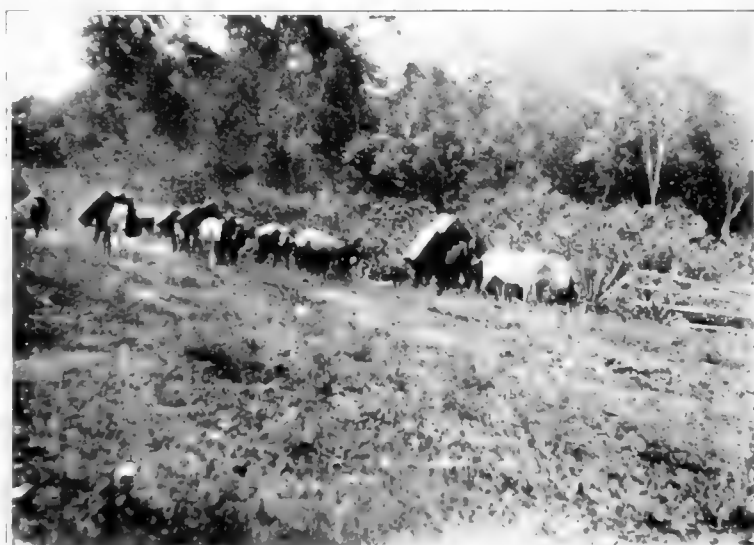


Cyril Allen and G. H. Pring, Collecting *Odontoglossum Flavescens* in the Andes at Bogota

of more showy orchids, especially cattleyas. During the war, however, practically all the collectors of orchids, particularly in South America, went out of business, and it is no longer possible to buy these native plants through local agents. Consequently, the only way in which they can be obtained is to send a representative direct to the country where these particular orchids are grown, in the hope that by a fortunate combination of circumstances, he may secure enough of these plants to make the trip worth while.

Another factor which has greatly restricted the importation of native orchids into the country has been the restrictions imposed by the Plant Quarantine Act, and indeed it was not possible to consider securing cattleyas from South America until this difficulty was overcome. However, because of the standing of the Missouri Botanical Garden the Federal Horticultural Board granted a special permit, allowing orchids collected in South America and Panama to enter at New Orleans and come direct to St. Louis, where they could be inspected, instead of following the usual regulations. With the way clear for the delivery of the plants to the Garden, George H. Pring, Horticulturist to the Garden, began at once to make preparations for the trip.

Early collectors of orchids in Colombia, such as Schlim, Blunt, Linden, the Klablock Brothers, Chesterton, Lehmann, and Kalbrayer, had no difficulty because of the abundance of accessible plants. During these easy-collecting days the commercial cattleya was found growing upon



Kids En Route on Pack Mule from Natagima to Upper Magdalena River

for the natives to pry the plants loose, with attached bark, by means of their machetes. If there are many plants upon a tree, there is no hesitation about cutting the tree down. Plants are not so plentiful at the present time, however, and it is truly an orchid hunt. Nothing but the trained eye of the native Indian can find the cattleyas in

their concealed locations. According to authorities, there are now more commercial cattleyas in the United States and Europe than growing in their native environment in Colombia.

The appearance of the orchids as collected is rather disappointing to the orchid enthusiast who has been used to orchids in the greenhouse. Masses of dried-up black pseudo-bulbs, old flowering spikes, and dead leaves present anything but a pleasing appearance. The dark green color to which we have become accustomed in orchid houses is replaced by a foliage of yellowish green.

The following extracts from Mr. Pring's diary give a graphic picture of what it means to obtain orchids under present-day conditions:

"I left St. Louis, April 1, bearing letters of introduc-



Cattleya Triana Greeting Up in Trees in the Central Andes.

tion from the Colombian ambassador at Washington to Government officials in Colombia and from Secretary Wallace to the Minister of Agriculture; also a letter from the Colombian Consul at St. Louis. Sailing from New Orleans on the Steamship 'Heredia,' I arrived in Cristobal, C. Z., April 11. I sailed from Cristobal aboard the Steamship 'Sixaola.' Aboard ship I was particularly fortunate in meeting Norman Black, who was making his way back from the States to Bogota. During the conversation I informed him of my mission and likewise mentioned my letter of introduction to Cyril Allen, who proved to be a personal friend of Mr. Black. The entire trip from then on was under the guidance of Mr. Black. We arrived at Cartagena, the first Colombian port, the following day. Leaving Cartagena we arrived at the port of debarkation the following day, Puerto Colombia. We left here at 5:30 and reached Magdalen town, Barranquilla, at 11:30 P. M. At the river steamer office we were informed that all river rates had been raised. However, we booked on the 'Ayacucho' to sail that evening. On leaving the hotel Black said: 'Pring, I forgot my bed equipment.' On asking for an explanation I found that bed equipment for the trip had to be purchased, consisting of a pair of sheets, mosquito bar, pillow and pillow case,

and native straw mat, or 'petate,' supposed to take the place of the comfortable mattresses of home.

"The Magdalena river boat was rather interesting to a St. Louisan in that it was an exact replica of those used on the Mississippi River. In fact we later found that these boats are built in towns along the Mississippi and shipped to Colombia to be assembled. We were shown to our cabin de luxe which was on the uppermost deck. The stateroom equipment consisted of an American iron cot, guiltless of mattress and covers, upon which we placed the recently acquired bedding; a wash stand, electric lights, and fan. The two doors were screened but the windows were bare. We left at nine o'clock. We found it impossible to walk upon the upper deck inasmuch as the air was filled with thousands of sparks. I was informed that the boat was of the wood-burning type and in passing backwards and forwards to our cabin we took the chance of our clothes being set afire by falling sparks.

"I had been advised by Americans to buy American canned food and an American ham before leaving Barranquilla, but on suggesting this to Black he told me that I might as well get used to native food, as I would have to eat it for several months; that I would soon become accustomed to, and learn to like, many of the native dishes. When once accustomed to meals as served on the boat I concluded that he was right, as I very soon began to like the various ways in which the banana was served, either



Terrestrial Orchids Growing in Andes of Bogota.

as fritters, pies, or as a dessert cooked with sweet juices. Among the vegetables the most common was the yucca (Manihot). This is cultivated as a companion crop with corn. Roots from the fully developed plant are eaten, in shape resembling the turnip and much more farinaceous than the ordinary potato. The meat served would not suit the American palate, inasmuch as the cattle are killed at five o'clock in the morning and served the same day. It is very dark in color and always hard and stringy. Eggs are served three times a day and the first question asked by the waiter is 'Como se huevos, señor?' Coffee is served in the form of 'Cafe con leche,' about a table-

spoonful of concentrated coffee being poured in the cup, after which boiling milk is added. For dessert various tropical fruits are always offered, such as mangoes, avocado, pineapples, and papaya. During the forenoon and afternoon various refreshing drinks are served, prepared from the native brown sugar; others are also made from oats.

"Our first port the following morning was Calamar, which is the river port for Cartagena. The next port was La Florida where we stopped to take on wood for fuel. This performance took place about every five or six hours, day and night, on the trip.

"The vegetation on each side of the river for the first two or three days was very disappointing and uninteresting, because of the lack of rain in this part of the country. What vegetation was present presented a yellow appearance.

"The next port of interest was La Gloria. Here one was gratified in having sufficient time to view the native houses. These resemble stucco but Black informed me that the skeleton is made of bamboo and the stucco made from river sand mixed with cow manure. From here on the vegetation began to be of interest, the mahogany delta appearing. After leaving the town of Gamarra we began to view some very picturesque scenery, with the western Cordilleras appearing. The next important town was Bodega Central, the river port for exporting cargo from the prosperous town of Bucaramanga, the latter shipping 250,000 bags of coffee to the United States annually. From Bucaramanga to the river port is a four-day mule-back trip.

"The next town was Puerto Wilches, a river port for the exporting and importing of both cargo and passengers to and from Bucaramanga. It possesses a railroad of seventeen miles which was intended when begun to connect with Bucaramanga, but the remaining 120 miles is by mule-back. During the rainy season the Bodega Central route is used, combined with freighting over the river Lebrija.

"The vegetation here becomes very interesting, presenting a darker green appearance than lower down the river. Lots of trees, including the native cedar, bombax, *ligumvite*, and closer to the river, the giant bamboo. Here we passed the river Lebrija where we unloaded some American machinery. I was particularly interested in some large heaps of the palm seed which I readily identified as the ivory nut palm. It is from this region that the ivory palm is exported to the states for the purpose of making buttons.

"After leaving this river port I had my first experience of seeing orchids upon trees, together with various other epiphytes including bromeliads, *Nephrolepis*, *Polypodiums*, mosses, etc., the young growth being impenetrable. Particularly noticeable was the rattlesnake plant, leaves of which are used for wrapping the native brown sugar in cake form. Various species of *Heliconia*, presenting their bright orange colored bracts, were very picturesque. The scenery, with the mountains in the background, was almost beyond description.

"We finally reached the uppermost port of the Lower Magdalena River, La Dorada. From here we caught a wood-burning train to Beltran, a distance of sixty-five miles. The object of this railroad is to avoid the rapids at Honda which cause the river to be unnavigable at that point. Honda is likewise in a big coffee-shipping district. Arriving at Beltran at twelve o'clock we again went through the unpleasant pandemonium of transferring baggage to the boat on the Upper Magdalena River. We arrived here after a very picturesque trip. One of the

interesting towns is Ambalema, situated in a big tobacco-growing district noted for its native-made cigars; also for its pottery. We arrived at Girardot the following morning. The distance traveled from Barranquilla to Girardot was 700 miles. After going through the customs, we enjoyed a very pleasant rest at the Pension Inglesa. The next step of our journey was started the following morning, to Bogota. Leaving at 7 A. M. by train, we started our upward climb from the tropics, 600 feet above sea level, to the temperate climate of Bogota, 8,500 feet. We got as far as Facatativa, where we were obliged to change to another train because of a difference in rail gage. We finally arrived at Bogota at five o'clock, on May 1, exactly one month from the time we left St. Louis. After traveling in the tropics, at Bogota one feels the effect of the altitude in the form of headaches and increased heart action. The 'Sabana' of Bogota is extremely picturesque, surrounded by the eastern Andes. The population is approximately 140,000. During my first week in Bogota I suffered from a slight attack of ptomaine poisoning, after which I had many consultations with Norman Black, who kindly consented to act as my agent, and with Mr. Cyril Allen, who very kindly put me in touch with his native collectors who could obtain the varieties of orchids wanted in quantity for the Garden. I was advised by both Black and Allen not to go with the native collectors to gather orchids, inasmuch as I would be exposed to malaria, typhoid, etc., combined with the danger of being absolutely at the mercy of the natives of that region, especially as my knowledge of Spanish was extremely limited. Again, the word would undoubtedly be passed in advance that an 'Americano' was coming and prices would be raised in proportion.

"In view of the fact that Cyril Allen had collected and exported orchids for the past fourteen years, and that Norman Black, through his experience with the natives in dealing in coffee, knew of their financial trustworthiness, I decided that their advice was final. As Mr. Allen was leaving shortly for Europe, quick action was necessary. Within two weeks I was in touch with a native collector of *Cattleya Trianae* and another to collect *Cattleya Schrederae*, in two widely separated regions. To collect these two varieties in the quantity desired Mr. Allen stated that he would have demanded six months' time. On the other hand, I was contemplating a six weeks' stay in Bogota. The transactions with the natives were accomplished by Allen and Black, it all being carried on in the native tongue. I was present at the conference, but only as a guest of Black, and not supposed to be interested in the orchid transaction. In other words, Black was the agent who wanted the shipment for export. This meant that the Garden got the benefit of strictly native prices, which it would have been impossible for me to obtain.

"The next difficulty for me to settle was the question of financing the natives, who had to take sufficient money to buy the plants from the collectors in the fields. Norman Black strongly advised me not to advance any money. Allen on the other hand, stated: 'If you don't advance the money to buy the orchids, it is impossible to expect the natives to bring them to your base of operations.' So I finally decided to advance sufficient money to purchase the plants in their native habitat. After arrangements were made by telegram and later with the native agent at the small village of Natagaima, he presented himself at Girardot to receive the first payment. On seeing him Black recognized him as one of his best coffee shippers, which was much of a relief to me as he had always found him absolutely reliable."

(To be continued)

Wildwood Beauties for Our Lawns

CHARLES H. CHESLEY

MANY of the plants found in our northern woods make very pretty and profitable perennials for shady places about the lawns and grounds. They are easy to grow, in most cases, and once established will increase with the years. If there is an out-of-the-way corner, with considerable shade, no better place can be found for native plants. I am speaking particularly of the woodland plants. There are, as well, open-country and prairies plants which may be planted in the open spaces of the lawn and they will require very little attention.

Nearly all of our natives, when removed to a different environment, improve with the change. This does not mean, of course, that a species found in sandy soil should be removed to a heavy clay location. Prepare the soil with plenty of fertility but have it conform in texture with the native habitat of the plant, then success is assured.

In this corner, which we are going to plant in imagination, and which is in reality a composite of two or three wild gardens we have in mind—the soil will be prepared by hauling several loads of woodland mould and spreading it evenly beneath the stand of trees. Over this leaf-mould, we shall spread well-rotted manure from the cow stable. Almost all plants take kindly to rotted manure and the extra size of plants and flowers well repay the cost. So, we have the place prepared with the soil mellow and easy to work. This is accomplished by using nothing but fine soil from the woods, no large flakes, and then working with a hand cultivator. Of course, a horse cultivator cannot be used between the trees. Having the soil mellow to a depth of six inches, we proceed to get the plants, which may be either in Spring or Fall. If in the Spring, it should be very early, while any time during the Fall will usually prove satisfactory. We shall assume that the shade is dense, but preferably it should not be that cast by evergreens. Certain plants grow beneath evergreens but a larger variety will thrive beneath shade which is partly, at least, cast by deciduous varieties. I should not set plants in masses but should try to have many different kinds in a hit-or-miss pattern, the Summer and Fall bloomers mixed with those that open in Spring. It often seems that Nature grows two plants in the same place, for certain it is that Fall-blooming plants seem to grow in the same place that was occupied by some delicate Spring beauty.

First we shall set the plants which bloom early in Spring. The trilliums, known as Wake-Robin and Birth-root, should certainly have a place. These grow from a tuber-like rootstalk and may readily be transplanted. Of these perhaps the handsomest is *Trillium erectum*, with showy purple blooms. The one thing against it is its rather disagreeable odor. *T. undulatum* is another handsome species, having red and white flowers, hence the name Painted Trillium. The Snow Trillium, *T. nivale*, has handsome white flowers. Several other species of Trillium are also found throughout our northern and eastern states, all of which take kindly to cultivation. Found in the same woodlands are Solomon's Seal, *Polygonatum biflorum* and *P. commutatum*, and the similar *Streptopus roseus*. *Maianthemum canadense* grows in similar localities and should find a place in our corner. All of these are plants of the Lily family, to which perhaps we should add *Clintonia borealis*, that has rich yellow blooms. The above are Spring flowers.

Along with the plants named will be found several members of the Orchis family. Those which are found in woodlands, and therefore thrive in the shade, are *Orchis rotundifolia* and *O. spectabilis*. The latter is one of our most beautiful native plants. Several species of Fringed Orchis, particularly *Habenaria blephariglottis*, with white flowers; *H. ciliaris*, with yellow blooms, and the handsome pink-flowered *H. fimbriata*, should also be planted. I shall not enumerate any more of this family, though there are many others which are worth transplanting to the private grounds.

During the early Summer the flower procession of the woods seems to pass to the shrubs, although there are several species of woodland violets, which could be naturalized and used to blossom with the liliaceous plants mentioned. Later, still, the shade-loving species of Golden Rod and Aster take up the procession and continue it until the frost comes. One can scarcely name all the desirable plants of the woodland but many beauties are found in every locality.

The thing to do then, is to prepare the place for the plants, then go out in the woods and take up whatever is desired. Some of the species, which are most beautiful, are, of course, only local in the native state. Many of these may now be procured from nurserymen, who are beginning to appreciate the beauty of our native plants, as the European florists have for many years. It really matters little what is transplanted, the plants are sure to prove a joy all Summer and will improve with the years.

As to the care of such a garden of wildings, once it makes a start there will be little required. The first Winter a mulch of leaves and straw should be used; in fact, it is a good plan to provide some sort of covering every Fall, for in the woods the leaves provide a natural covering. Perhaps the leaves from the shrubbery will be sufficient but one should be sure there is a good covering and that it will stay in place. In the Spring this covering can be raked off, and, if a little work is done about the plants after they come up, they will well repay for the labor. Once in three or four years a Fall coat of rotted manure can be added.

NOTES FROM AN OLD COUNTRY GARDEN

(Continued from page 274)

of the highest esteem for its autumnal tints is *Parrotia persica*. This belongs to the same natural order (*Hamamelidaceæ*) as the Sweet Gum; it seems perfectly hardy and the large leaves assume glowing shades of orange and crimson before they fall.

Also most attractive at this time is the deciduous Cypress (*Taxodium distichum*) which, though a native of the southern parts of North America, is quite hardy with us. This is, moreover, a tree that has grown and prospered for many years in our London parks under conditions which few of the *Coniferae* can endure. There and elsewhere are some noble specimens, some 100 feet in height, and when the pale-green, yew-like foliage turns color prior to their fall, the whole tree becoming a towering spire of a glowing foxy red, it is a most arresting sight.

Unlike most *Conifers*, *T. distichum* enjoys a swampy soil and will even thrive in shallow water.

Foreign Exchange Department

CORNUS KOUSA.—There is a remarkable, if not very large, group of Cornels represented in gardens by this species, the beauty of the inflorescence of which is imparted by four or more large bracts, not by the flowers themselves. Of these Cornels, the one most amenable to cultivation is the Japanese species *Cornus Kousa*. The real flowers are very tiny and crowded into small dark cones, each of which is surrounded by four beautiful spreading bracts. Each bract is 1 inch to 1½ inches long, and creamy white. This deciduous small tree or shrub is at its best in June, when the inflorescences ("flowers" one usually terms them) are fully expanded and stand erect in rows along the branches. It then presents an aspect of striking beauty. The fruit is a fleshy strawberry-like mass in which the seeds are embedded, and is really a development of the little cone on which the flowers are set. The leaves are about 3 inches long, with undulated margins and conspicuous parallel veins. The real drawback to the success of this Cornel in gardens is the mild, soft weather, of which our normal Winters contain so much. The tree is thereby often excited into prematurely active growth, only to be injured by later frost. Otherwise it is very hardy. It thrives best in rather elevated districts. Young plants are usually imported from Japan. *The Garden.*

THE VIOLET CRESS (IONOPSISIDUM ACAULE).—The value of this dainty free-flowering annual as a carpet plant is too often overlooked. When scarcely 3 inches high and about eight weeks after the seeds are sown, the plants throw up abundant masses of pretty violet-colored blossoms. As an edging plant to borders, this little annual is invaluable, while it is an excellent subject for carpeting between Roses and Gladioli. The ground round about Gladioli is generally uninteresting until the flower-spikes expand, and here the Violet Cress, as this plant is popularly called, does great service. Where the seeds have been sown early in the Spring it is often possible to get a second display of blooms towards the end of the Summer. All that is necessary is to pull out the plants as soon as they have seeded and rake over the ground. The self-sown seedlings will very quickly appear if there is sufficient moisture to start them into growth. If the weather is hot at the time it is a good plan to erect a temporary shade over the bed and remove it as soon as the seedlings appear. The Violet Cress may also be employed for growing between the flags of a stone path, while it is essentially a good annual for the rock garden. It is a favorite plant, too, for growing in deep pans in the unheated greenhouse or in the frame, and the specimens grown in this manner come in very handy for household use. A suitable compost may be made up of equal parts loam and leaf-mould, with a heavy sprinkling of sand.—*Gardening Illustrated.*

SIEBOLD'S PRIMULA. The plant usually grown in gardens as *P. cortusoides* is almost always *P. Sieboldii*, a handsome but not over-hardy Japanese species, of which there are quite a number of excellent forms in commerce, with flowers varying in color from pure white to deep purplish rose; some of the sorts, and those not the least handsome, have fringed petals. It is rhizomatous, and these rootstocks are very easily damaged by frost, especially in wet soils. For colonizing in fairly open woodland, however, or for a sheltered corner in the rock garden this Spring-flowering species is first-rate.—*The Garden.*

PENTSTEMON HETEROPHYLLUS.—Beds filled with this Californian sub-shrub are very pretty, owing to the profusion of flowers borne and their distinct and beautiful steely-blue color. These appear on graceful stems from 18 inches to 2 feet in height, and, whereas in many instances a plant will produce every flower of this lovely blue, others display flowers of a purple-blue shade. Although this variable coloring is much admired by many I prefer the uncommon and lovely blue flowers. Where the stock is increased by cuttings, the plants it is intended to propagate from should be marked whilst in bloom and the cuttings taken at the end of September. This plant also ripens seed freely.—*Gardening Illustrated.*

ROSA MOYESI AND A CHARMING SEEDLING.—Such a graceful, yet strong, hardy shrub needs no fence or support, and is certainly seen to the best effect when spreading its arching growths in the open, and where little or no pruning is required. Unique in the color of its dark-red flowers and beautiful leaves, this Chinese Rose is perhaps the most striking and handsome of the wild species. Early Autumn again sees this Rose laden with attractive, large, orange and red, bottle-shaped fruits, each from 1 inch to 2 inches in length. A few seedling plants given to me by a friend two years ago are also blooming for the first time, but whereas the beautiful form of leaf and stem is the same as in the mother plant, the flowers are of a fascinating cerise when fully open,

and reddish-pink in the bud. These seedlings are really handsome and of great value for our gardens, but the true species is so striking in itself that we do not anticipate its being surpassed by any of its progeny. Where space is available it is both pleasing and instructive if the various wild species are grouped in close proximity. *Gardening Illustrated.*

THE LEAD PLANT (AMORPHA CANESCENS).—I like this graceful Missouri plant, which I saw growing in a rock garden recently. It grows about 18 inches to 2 feet in height, has spikes of blue-purple flowers, with protruding orange stamens and pretty hoary leaves and flower-stalks. It is a plant one only sees on rare occasions, yet one entitled to a place in the front of the hardy-flower border. *Gardening Illustrated.*

INCARVILLEA DELAVAYI.—In well-drained soils this hardy plant is very satisfactory, and is so distinct that it should find a place in villa gardens, where there is often not too much variety. It does not require an abundance of food. I have had it doing well close to an evergreen hedge where the ground was extremely dry during a great portion of the Summer. The fleshy roots cannot endure much stagnant moisture during the resting period, therefore unless lifted at the beginning of the Winter and stored in a frame it is liable to perish. It will, however, be quite satisfactory if grown in this way, planting out in March or early in April. Fortunately, it is easily raised from seeds, which should be sown early in Spring and will bloom the following year. An ideal place for this *Incavillea* is in front of an evergreen shrub or tree, where the fine color and distinct beauty of the flowers are fully displayed. Many more would grow this beautiful plant if they were acquainted with its merits. At the present time it is neglected by the owners of small gardens.—*Gardening Illustrated.*

THE PLUME POPPY (BOCCONIA CORDATA).—Very handsome are the Plume Poppies with their large, deeply-lobed leaves, of a gray-blue tint on the under-side, and about the size of a Vine leaf. They are also graceful, tall-growing plants, reaching from 8 feet to 10 feet in height, in good soil, each growth terminated by a 4-foot inflorescence of orange and cream.

Good effects may be obtained by growing it in hardy-flower borders, where the latter are large and possess a good depth of soil. The border is, however, not the only place where these subjects are seen to advantage, for they look remarkably well as large, isolated groups in the foreground of trees or evergreen shrubs, and even planted among dwarf shrubs. The Plume Poppy is a deep-rooter, and therefore is not greatly affected during periods of drought; nevertheless, good ground it does enjoy at all times; also a sunny position.—*Gardening Illustrated.*

GAULTHERIA PROCUMBENS.—This is a pretty little peat-loving shrub of the Ericaceous order, a native of the Eastern States of America, and introduced 150 years ago. It is popularly known as the Creeping Wintergreen, or Partridge Berry, and it has long been valued for the "oil of winter-green" extracted from its fruits and used by chemists for the flavoring of drugs and other purposes. A leaf crushed between the fingers at once reveals the familiar odor of that extract. *G. procumbens* is a charming subject for cool, shady places where it may be used for associating with other lowly plants of a like nature, or for carpeting the ground about dwarf Azaleas. It does not often exceed 6 inches in stature, and is usually not much more than half that height, the little tufts of leathery, dark green leaves being borne on erect stems, which rise from the creeping roots. The almost cylindrical flowers, which appear in clusters at the leaf-axils in late Summer and Autumn, are large enough to be conspicuous and of a fresh pinky-white. These are followed by berries as large as those of the Holly and of much the same color. This is, perhaps, the easiest of the smaller Gaultherias to satisfy. It does well in lime-free loam and leaf mould. *Gardeners' Chronicle (British).*

PRUNUS TRILOBA.—This species is one of the best members of the Prunus family for forcing, and lends itself to many uses, not the least among them being its value as a cut flower or vase decoration.

Young plants should be procured as soon as possible, potted in a suitable mixture when received and stood in a sheltered spot out-of-doors.

Any time after the New Year is early enough to commence forcing them, and, as in the case of all shrubs that are forced, they should be taken into an intermediate house for a week or so before being introduced to the forcing house. A temperature of 65° is suitable—in a higher temperature the plant will not give its best, and constant syringing is necessary until the flower buds begin to open. It is well then to cool the plants down at this stage, and if this is done carefully the flowers will remain for three weeks or a month in perfection.

After flowering it is well to encourage the development of growth by placing the plants in a warm Peach house, when, after the severest frosts are over, they may be placed out-of-doors in a

sheltered situation. If they are to be retained for forcing the following year they should be trained carefully, removing all unnecessary old wood immediately after flowering; giving the roots some slight stimulant during the Summer. Planted outside in a shrubbery this *Prunus* is of great value—both for its hardness and its wealth of double pink flowers in April.—*Gardeners' Chronicle (British)*.

SPIRÆA JAPONICA.—The type species of the group of shrubby *Spiræas* included under the above term is not so well known, nor is it so attractive as some of its varieties. The most popular of the latter is Anthony Waterer, a sub-variety of *S. j. alba*, var. *Bumalda*, one of the handsomest of its race, and especially valuable on account of its late flowering. The broad, crimson-carmine corymbs of this shrub, much more brilliant than those of the dwarfier *Bumalda*, are well known, and this season they happen to be especially good. This is due not only to the abundant rains of the later Summer, but also to the fact that there has not been sufficient sun to bleach the rich color of the flowers.

One of the most charming varieties of *S. japonica* is *S. j. alba*, or, as it is sometimes called, *S. callosa alba*. This is a very distinct little shrub—so distinct, indeed, that some class it as a separate species. It does not exceed about a foot in height, and the many slender, upright branches, with their pale, almost emerald, green leaves, bear a profusion of white flowers in terminal corymbs. *S. callosa alba* blooms freely and late, it is perfectly hardy, and easily satisfied as to soil and situation.—*Gardeners' Chronicle (British)*.

VIBURNUM TOMENTOSUM.—It is not always the most strikingly brilliant colored foliage that proves the most effective, and this idea was impressed firmly on my mind when looking at a large bush of *Viburnum tomentosum* a few days ago. The wonderfully artistic coloring is superb. Usually one regards this plant as a flowering shrub only, and certainly as such it is of the very highest merit, but one must also admit it holds a high position for the coloring of its foliage, which ranges from the deepest coppery red on the older leaf surfaces through lighter shades of red and deep pink to the younger leaves that are of pretty light, bronzy green flushed with deep pink markings according to age. The stem and growths are bronzy brown, whilst the leaf-stalks are very deep red, and then, to finish off, there is the paler under surface suffused with pink. The whole is marvellously toned down by the leaf tomentum. The variety *V. tomentosum plicatum* is almost as beautiful, but the leaves are of somewhat smaller size.—*Gardeners' Chronicle (British)*.

COREOPSIS GRANDIFLORA.—Sow a few seeds of this annual now in a cool house. When they are large enough, prick off the seedlings into small pots of loamy soil, and grow the plants on a shelf in any airy house until they are well rooted. They may then be transferred to 48-sized pots, and, if grown hard in a cold house, will give a welcome bunch of cut flowers in the Spring, or, if carefully staked, will make quite goodly shaped pot plants.—*Gardeners' Chronicle (British)*.

THE PERIWINKLES.—Plants of the small-leaved species, *Vinca minor*, are very widely grown in gardens. The *Vincas* are very accommodating plants and among the most useful, as in most gardens and pleasure grounds there are positions where neat-looking plants will not thrive, and in such places weeds soon take the lead and become a nuisance. Under such trees as Cedars, especially under the Cedar of Lebanon, it is a difficult task to induce a nice green undergrowth, but I have found no difficulty when employing *Vinca major*. The plants soon formed a dense green carpet which, speckled with the lovely blue flowers, during a part of April and throughout May and June made a charming picture. I once had occasion to carpet a quite open border—the front portion—with this variety, and the plants grew so rapidly in the mixture of soil, old lime rubble and leaf-mould that at one end, adjoining a wall, the shoots grew up the latter several feet and were then assisted by neat supports, the effect being very pleasing, as the position was one near to a door leading through the wall from a shrubbery to a walled-in garden. Propagation is quite easy.—*The Garden*.

THE CORSICAN HEATH.—The *Ericas* come to the garden lover with so many and varied charms that selection becomes a matter of real difficulty. Perhaps one's peat patch is rather confined, and therefore one has to be specially critical before admitting a new-comer. One will not be wrong in planting *Erica stricta*, the Corsican Heather, for there is no season in the year when it does not look attractive, though most of all when the ends of the shoots are decked with their pale red flowers in Autumn. It is notable among Heaths as a very erect grower and, though of compact habit, capable in course of time of attaining a stature of 3 feet, or even considerably more. In addition to the flowering season, the plants are extremely decorative during Summer when covered by the young foliage.—*The Garden*.

NERIUM OLEANDER.—This handsome flowering shrub, with its glossy, evergreen leaves, is frequently grown in a warm greenhouse, where it becomes a prey to mealy-bug, scale, thrips, etc. Grown outside during the Summer and Autumn, with the protection of a light, airy house in the Winter only, it is much less liable to become infested with these pests, and is a most useful plant for late Summer decoration in the formal or terrace garden. Well-grown plants in tubs make beautiful subjects for this purpose when in flower, and are not unattractive even when not in bloom.

To produce good specimens, copious watering and liberal feeding are necessary during the period of active growth, the plants being kept slightly dried after flowering, so that the new growths are not incited to flower.

The flowers are produced in terminal, racemose cymes from well-ripened wood, and the new growths develop at the base of the spray of blossom at the same time—hence the only pruning that is needed is the removal entirely of any worn-out branches to allow their places to be taken by occasional new growths that develop at the base.

When the plant finally becomes too leggy, it can be cut hard back in early Spring, but it will not then flower during that season. Cuttings of matured shoots root freely if inserted in small pots and placed in a close frame, and a few cuttings should be struck yearly and the plants grown on so that old and worn-out specimens may be discarded.—*Gardeners' Chronicle (British)*.

Brief Horticultural Jottings

A writer in the *Gartenzeitung* (Berlin) draws attention to the fact that, although in ancient times collections of plants existed which could be considered to be the equivalent of the modern botanic gardens, the range of the plants must have been very limited before the discovery of America or the opening up of the continent of Africa. In the sixteenth and seventeenth centuries, however, the movement towards botanic gardens was rapid, and in 1560 there were already fifty of such gardens in Italy, the first, at Pisa, having been founded in 1543. The one at Padua was founded in 1546, and is the oldest still existing in the world; it contains a "Chaste tree" (*Vitex Agnuscastus*) said to be 370 years old. The garden at Bologna was founded in 1568, and those at Rome and Florence were commenced about the same time, while the one at Leiden, the famous Dutch University town, dates from 1575.—*Gardeners' Chronicle (British)*.

One pretty good test of the hold that plant growing has on human nature is the extent to which it is practiced by children. For while they may represent a negligible factor in the commercial field today, those same children are the potential growers and buyers of the future. It is therefore interesting to find that in the Junior Project work carried on by Cornell University among 14,189 boys and girls in New York State last year, more than 2,400 projects were gardens. This brings plant growing second among the agricultural activities, poultry raising coming first with 3,056 projects. These figures are the more significant when it is noted that 40 per cent of the whole number of projects (or 5,677) are in the indoor or home making rather than the outdoor or agricultural class.—*Florist Exchange*.

The famous Washington elm, under whose branches George Washington took command of the Continental Army, toppled over a few weeks ago. Thus the famous tree passes into history. A number of months ago the tree was given up as "dead" after experts had examined it and declared it was beyond saving. Today, in a mild wind, the elm fell over under its own weight, its badly rotted trunk proving unequal to the strain upon it.—*New York Herald*.

While supervising the construction of a series of stone houses, Jocelyn Davidson, architect, noticed some peculiar cavities in certain of the stones, and on further investigation, found that these cavities contained dried blossoms. The holes are only discovered on breaking the stones, so that it seems certain that the flowers have been completely sealed in their rocky tomb. On the other hand, the stone is of the Silurian Dolomite formation, some 50 or 60 million years old, as geologists reckon time, while the flowers are of a high development and much later in origin. They appear to be akin to the common wild Rose of Canada, but different in color, the majority being of a rich dark crimson, while some few are yellow. Fossil flowers are, of course, not unknown, but these are dried as if pressed in a book, except that the petals are rolled together instead of being flat. The find appears to be entirely novel and it has been referred to the university, where it is now being considered. The stone comes from Owen Sound, where there are large quarries of this variety of limestone.—*Toronto Star*.

National Association Of Gardeners

Secretary's Office, 286 Fifth Ave., New York

The aims of the association are to elevate the profession of gardening by improving conditions within it.—To cement a closer bondship among all engaged in, and interested in, gardening—to create a greater confidence between employer and employee.

Co-operating with the Massachusetts Agricultural College, the association conducts a course in training young men for the profession, whereby they obtain theoretical knowledge as well as practical experience.

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The National Association of Gardeners operates a Service Department to serve country estate owners in an advisory capacity in adjusting problems which occasionally arise in the maintenance of country estates.

Owners desiring the services of gardeners, thoroughly versed in all phases of the profession and qualified to assume the responsibilities the position calls for, as superintendents or gardeners, should apply to this department.

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WESTERN PENNSYLVANIA: James Moore, Sewickley, chairman; Henry Goodband, Sewickley, secretary.

CLEVELAND, O.: R. P. Brydon, chairman; Arthur Brown, secretary.

NORTH SHORE OF ILLINOIS: James A. Wilson, Lake Forest, chairman; John R. Clarke, Glencoe, secretary.

MONMOUTH & ELBERON, N. J.: Thomas W. Head, Red Bank, chairman; Frank T. Edington, Red Bank, secretary.

NORTH FLORIDA: Herbert Tickner, Orange Park, chairman; Alfred Addor, Jacksonville, secretary.

WESTERN PENNSYLVANIA BRANCH

The first annual meeting of the above branch was held in the Carnegie Library, Pittsburgh, on Tuesday, October 16, Manus Curran, chairman, presiding. Mr. Curran in a few well-chosen words thanked the local convention committees for their wholehearted support both before and during the convention. John Barnet read several letters he had received from visiting members who attended the convention, which seemed to indicate they all had enjoyed their visit here. The applications of Carlos E. Norton for active membership and Walter L. Voss for associate membership were endorsed by this branch. A letter was read from James A. Wilson, chairman of the North Shore of Illinois Branch, asking this branch for an opinion on Article III, Section 1 of the By-laws, referring to members in arrears for dues. The national secretary has suggested to accept members in arrears as new members, endorsed by branches, subject to the approval of the association's meeting in March, when it may be proposed to suspend Article III until the next convention, at which time it may be acted upon. After considerable discussion, it was unanimously agreed by this branch to heartily endorse Mr. Ebel's suggestion, and the secretary was instructed to notify all branches of our stand on this subject. This branch heartily agreed with James Wilson, that there ought to be some system of co-operation between the branches so that any problem taken up by one could be taken up by all and thrashed out before the annual convention, when each branch would know where the other branches stood.

James Moore, superintendent of West Park, Pittsburgh, was unanimously elected chairman, and Henry Goodband, re-elected secretary-treasurer for the ensuing year. Manus Curran, the retiring chairman, was given a rising vote of thanks for the able manner in which he has presided over the meetings during the past year. The secretary read a statement of receipts, dues and expenses for the year ending October 16, showing this branch to be in a strong financial position. The report was approved as read. The next meeting will be a business and social meeting in charge of the following committee: John Fornoff, chairman; Wm. Thompson, John Barnet, R. W. Ross and James Moore.

It was agreed that future meetings shall be called at the pleasure of the chair.

HENRY GOODBAND, Secy.

THE NORTH FLORIDA BRANCH

Owing to an early cold spell, the coldest in twenty-eight years, the gardeners were kept very busy on the date of the last branch meeting, October 19, so that there was not the usual good attendance. The committee appointed to investigate the advisability of making an exhibit at the Florida State Fair in November, reported that the time was too short, that all the space had been taken, and that it is necessary to make an application for space two months in advance. It was voted that the branch apply for space for an exhibit at the Fair next year in ample time. Following the routine business and a general discussion, the meeting was adjourned, to meet again on November 16, at the home of J. K. Brower.

ALFRED ADDOR, Secy.

THE MONMOUTH CO. & ELBERON, N. J. BRANCH

A meeting of this branch was held in the rooms of the Monmouth County Horticultural Society at the hour preceding the October meeting of that society, to receive the report of the annual convention of the association. After listening to the report, submitted by Thomas W. Head, most of the members present declared that they wished they could have attended the convention. Secretary Edington of the branch was unable to be present at this meeting owing to illness. Another meeting will be held the latter part of this month to discuss the subject of payment of back dues before delinquent members can be reinstated. This subject is to be brought up at the Cleveland meeting in March, 1924, for consideration before the association as a body.

NASSAU CO. L. I. BRANCH

The annual meeting of the Nassau County, L. I., branch will be held the latter part of this month to elect officers for the ensuing year and to pass on several communications received from other branches. Several prominent members of the association from other sections are expected to attend and address the meeting. An invitation will be extended to all interested in the activities of the association, whether members or not, to be present.

JOHN R. MCCULLOCH, Secy.

NORTH SHORE OF ILLINOIS BRANCH

The fourth meeting of the above branch was held at the secretary's home on the estate of James Simpson of Glencoe. Eleven members were present, with James Wilson in the chair. Several letters from branches in different states were read with reference to reinstatement of old members and Article III of the By-laws.

It was decided to send a delegate from this branch to Cleveland in March to give its views on the subject. Thomas Blair obtained his employer, Mrs. Kuppenheimer, as a sustaining member of the association.

The branch is investigating several new members who have shown their willingness to join by January 1, 1924. The next meeting of this branch will be held at the home of Wm. Michie on the John T. Pirie Estate, Lake Forest, November 15.

J. R. CLARKE, Secy.

AMONG THE GARDENERS

Charles Miller resigned his position as gardener to Mrs. R. S. Barnes, Washington, Conn., to accept a similar position with J. H. Harding, Red Bank, N. J.

Frank Black accepted the position of gardener in charge of the grounds of the New York Orphanage at Hastings-on-Hudson, N. Y.

John Johnson, seven years gardener to Mrs. J. A. Spoor, Blythwood, Pittsfield, Mass., accepted the position of superintendent of "Holmewood," the estate of Mrs. Raymond T. Baker, Lenox, Mass., succeeding E. J. Norman, who retires after thirty-three years in charge.

Thomas Evans, late superintendent to W. V. Kelley, Lake Forest, Ill., has accepted the position of superintendent to F. A. Rehm, Lake Geneva, Wis.

NEW MEMBERS

Sustaining: Van S. Merle-Smith, Oyster Bay, L. I. (Peter Morrison, gardener), and Mrs. Belle Kuppenheimer, Lake Forest, Ill. (Thomas Blair, gardener), Mrs. W. A. Roebling, Trenton, N. J.

Active: Martin Mattison, New York, N. Y.; Carlos E. Norton, Sewickley, Pa.; James A. Mackie, Narragansett Pier, R. I.; W. J. Peattie, New York, N. Y.

Associate: Walter L. Voss, Erie, Pa.

LOCAL SOCIETIES

EXHIBITION OF THE HORTICULTURAL SOCIETY OF NEW YORK

The annual Fall exhibition of the Horticultural Society of New York, which was held in the Museum of Natural History, November 8 to 11, inclusive, was beyond argument, we think, the best in the history of this society. The entries in the aggregate were numerous, and those in each class in nearly all cases sufficient in number to make competition keen, and to render it far more difficult to carry off a prize in any class, than in years when at this Autumn exhibition the entries in many classes were fewer. On this account the honor to those to whom prizes were awarded was the greater. Another important factor in this exhibition was the high quality in general of the entries.

Entering the foyer of the building our attention was at once drawn to its bordering of fine specimens of named Evergreens in great variety shown in tubs by Bobbink & Atkins. These formed a most happy setting for the blooming plants and cut flowers with which the foyer was filled.

There was a considerable number of specimen Chrysanthemum bush plants, not so many standards, and only a few grown in odd shapes, but keener competition in the twelve, and six eight-inch pot classes. In many of these plants we noted a departure from the growing of a very large number of rather small flowers to a plant and the growing instead of a smaller number of larger and better flowers to a plant, and we observed that it was these latter plants which



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carried off the first prizes in all the above-mentioned classes. A bush plant of what appeared to us as Well's Late Pink, and in the odd shapes a chair done in the species indicum were each in its way excellent.

There was keen competition in the class for "vases of one or more varieties arranged with foliage," but the flowers so shown, kept, we noted, poorest of all, though when first staged they were beautiful and imposing features. Long stems carrying the flowers high above the water, we suppose was the cause of their withering. This class, however, brought out much artistic talent in arrangement. Not many were able to fill the bill for the class of eighteen-inch stems, ten vases, ten varieties, three of each, but the class for five vases, five varieties,

three blooms of each, had more entries. The prizes in each were carried off by fine blooms.

The winners in the collection of twelve varieties and that of six staged excellent blooms. The classes of collection of singles in twelve varieties and in six varieties, and those of pompons in the same numbers with five terminal sprays to a vase, having not less than five flowers to a spray, had many entries and the blooms shown in each were admirable, being of a very high quality.

The vases of singles and of pompons arranged for effect made most attractive exhibits, the blooms lending themselves well to this use. The winners in the class for collection of anemones, six varieties, three blooms of each, exhibited some excellent

flowers of this less seen type of Chrysanthemum. The prize-winning exhibitions in the class for a group of cut flowers arranged for effect with foliage and covering one hundred square feet were composed of a variety of Chrysanthemum blooms arranged with red oak foliage; these were one of the large imposing features of the show.

The blooms shown by the prize winners, Chas. H. Totty Co., in the classes calling for a collection of twenty varieties and for ten vases, ten varieties, three blooms of each, classes in which not many even of the commercial growers can fill the requirements, were fine specimens of what our commercial growers produce. In the classes calling for collections of twelve varieties of pompons and for twelve varieties of singles exquisitely beautiful blooms were shown by Chas. H. Totty Co. and F. R. Pierson. The Silver Medal winning collection of seven varieties of pompons shown by the Cromwell Gardens was indeed a gem. A blush white pompon seedling of the large flowered type brought honorable mention to John Lewis Child Seed Co., consolidated with Edward T. Broomfield Co.

Passing from the Chrysanthemums and coming to the Roses shown by both commercial and non-commercial growers we felt that we were in a Rose show and not a general exhibition of plants and flowers. The non-commercial exhibitors merely never staged finer blooms. In these exhibits we noted several of the newer varieties, such as Souv. Claudius Pernet and America.

In the new varieties of Roses, we had an opportunity to see a new dark red, silver medal-winning sensation of the Charles H. Totty Co.; the prize-winning Souv. Claudius Pernet exhibited by this company and by L. B. Coddington; the brilliant bright red Rose Templar, shown by A. N. Pierson Co., which drew a certificate of merit; Mrs. Warren G. Harding, exhibited by Chas. H. Totty Co., and the well arranged group of ten vases of Mrs. Calvin Coolidge, shown by F. R. Pierson. In the older varieties we noted the prize-winning Double White Killarney, Key, Butterfly, Premier, Columbia, and American Beauty.

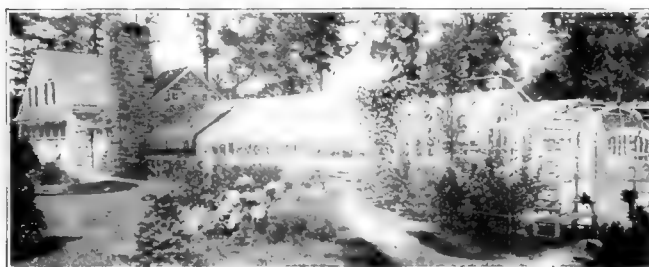
The Carnations were well represented in each class by both the well-known standard and the newer varieties, the blooms being of a higher quality than usual, making a very attractive display. The silver medal for a new meritorious variety, not in commerce, was awarded to a vase of unnamed large red blooms shown by J. Insley Blair.

The award for a group of greenhouse plants arranged for artistic effect and covering one hundred square feet went to a magnificent group, though the only one of Crotons, Dracenas, Ferns, etc., which was staged by William Boyce Thompson.

The Begonia classes drew groups of plants with elegant blooms of the Socotrana Hybrids, and the Lorraine type, which added greatly to the flowering plant features of the exhibition. F. R. Pierson, with a well-staged exhibit of splendid Ferns, varieties of Nephrolepis, and also several other species won the award for a collection of Ferns to cover one hundred square feet. There were splendid specimen plants shown of Cibotium Schiedeii, Adiantum, and Goniophlebium.

The high spot in this entire exhibition, excellent as indeed the other features were, the Chrysanthemums, the Roses, the Carnations, and the foliage plants, was the Orchids. So many and so large were the exhibits of Orchids that they occupied a space which reached half way around the border of the enclosed oval space in the foyer. A Brasso-Cattleya, named Admiral Jellicoe, in the prize-winning collection of twenty Hybrids of Arthur N. Cooley was awarded the sweepstake for the best variety, and Julius Roehrs Co.'s elegant collection of twenty

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Cattleyas Hybrids was also a winner. A Brasso-Cattleya, shown by Clement Moore, won the silver medal for a new meritorious variety not in commerce. Lager & Hurrell were awarded first for their collection of twenty-five species and varieties covering fifty square feet. The Clement Moore gold medal for one Brasso-Cattleya went to F. Eugene Dixon for "Eleanor Rice." In the six plants, six varieties class, Julius Roehrs Co., with several kinds of Orchids, and George E. Baldwin, with Cattleyas and Hybrid-Cattleyas, were the winners, and Col. H. H. Rogers and Lager & Hurrell in the three plants, three varieties class. There were several special exhibits not provided for in the schedule to which special prizes were awarded, namely, for an exhibit of Cypripedium plants to Mrs. E. E. Smathers, covering thirty square feet; for a most interesting collection of Cactaceous and Succu-

lent plants, a silver medal to W. A. Manda; for a well-staged exhibition of Cypripedium Sanderae plants, one of the gems of the exhibition, a special award to Joseph A. Manda Co.; for a group of Cyclamen plants a special to Carl Grobba Mimlico, Ontario, Canada.

The displays of vegetables were numerous in nearly all classes, and considering the drought of the last Summer, excellent, but we noted that many of these came from Long Island, which they say is never "dry"; to Mrs. Herbert L. Pratt was awarded the Grand Sweepstake prize, the society's silver cup, for the best exhibition in the show, and it was most assuredly a meritorious exhibit.

In the Chrysanthemum classes, the awards were as follows:

Specimen bushes, first prize, Pembroke Estate, J. McManus, gardener; second

prize, William Boyce Thompson, Samuel McClaffin, gardener. Specimen standards, first, Pembroke Estate; second, Mrs. Herbert L. Pratt, James McCarthy, gardener. Twelve plants in variety, first Pembroke Estate; second, Samuel Untermyer. Six plants in variety, first, Col. H. H. Rogers; second, Pembroke Estate. Vase of one or more varieties, first, Mrs. H. M. Tilford, Joseph Tansey, gardener; second, Mrs. W. Redmond Cross. Ten vases in ten varieties, three blooms each, 18-inch stems, first, Mrs. Payne Whitney, George Ferguson, gardener. Five vases in five varieties, three blooms each, first, W. R. Coe, Robert Marshall, gardener; second, Samuel Untermyer. Collection of twelve varieties, one of each, first, William B. Thompson; second, J. Insley Blair, David Miller, gardener. For collection of singles and pompons, Mrs. Payne Whitney, Mrs. Paul Moore, Donald Crighton, gardener; Mrs. Herbert L. Pratt, Mrs. John T. Pratt, John Everett, gardener; and Mrs. H. M. Tilford were the successful contestants. Group of cut blooms arranged for effect, covering 100 square feet, any foliage, first Mrs. Payne Whitney, and, second, Otto H. Kahn, S. C. Horn, gardener.

In the Rose classes, for eighteen white, first, J. Insley Blair; second, Joseph P. Day, William Fowkes, gardener. Eighteen red first, Mrs. H. M. Tilford; second, J. Insley Blair. Eighteen pink, Columbia shade, first, W. R. Coe; second, J. Insley Blair. Eighteen light pink, Ophelia shade, first, Mrs. F. A. Constable, James Stuart, gardener; second, Mrs. H. M. Tilford. Eighteen dark pink, Premier shade, first, Joseph P. Day; second, Mrs. H. M. Tilford. Eighteen yellow, first, Mrs. Roswell Eldridge; second, Countess Mildred Holstein. Vase of fifty assorted, arranged for effect, first, W. R. Coe; second, Mrs. H. M. Tilford.

In the classes for Carnations, Mrs. H. M. Tilford led, carrying off all the first honors.

William Boyce Thompson won first prize for a group of greenhouse plants arranged for artistic effect to occupy one hundred square feet. Samuel Untermyer won first, and Mrs. Harold I. Pratt, second, for a collection of Fall fruiting shrubs and trees, cut branches, arranged for effect.

In the display of Begonias, tuberous-rooted, twelve plants, Mrs. Whitelaw Reid, E. Beckett, gardener, won first; J. Insley Blair, second. In the display of Begonias, Gloire de Lorraine type, twelve plants, William B. Thompson won first.

In the vegetable classes, Mrs. Herbert L. Pratt led all competitors, winning first for the collection of not less than 30 kinds, arranged for effect, and also first for the collection of not less than 15 kinds, while she was equally successful in the smaller classes. Mrs. H. M. Tilford won first for white and black grapes, grown under glass.

TARRYTOWN, N. Y. FLOWER SHOW

The twenty-fifth annual floral exhibition of the Tarrytown Horticultural Society was held in the Y. M. C. A. building October 31, November 1, and 2, 1923. Although the hall was somewhat smaller than Music Hall, where the exhibitions have been held heretofore, it was beautifully decorated with Southern Smilax and was one bouquet of flowers. The exhibits were particularly fine throughout. Three magnificent groups of Chrysanthemums, filling the south end of the hall, attracted a great deal of attention. The competition on these was very close and the judges had difficulty in deciding. The exhibits were made by Mrs. Frederic E. Lewis, John D. Reckefeller and Mrs. H. M. Tilford.

The other special feature of the exhibition was a fine table of the new yellow rose, Mrs. Calvin Coolidge, exhibited by F. R.

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Pierson, which was awarded the society's Silver Medal, also a Certificate of Merit.

One other fine exhibit was made by Mrs. Arthur Curtiss James, which was an exhibition of fibrous-rooted Begonias, and was one of the finest exhibits that has ever been placed on the exhibition tables. It was awarded the society's Silver Medal and Cultural Certificate.

The largest bloom of the show was taken from the exhibit of Mrs. Frederic E. Lewis. The quality of the Chrysanthemums and Roses and Carnations was particularly fine, really better than has been shown in other years.

In the Chrysanthemum classes the winners were as follows: 18 blooms of anemone flowered, first, Mrs. E. E. Smathers, W. D. Robertson, gardener; second, Mrs. E. Myers, Jr., Charles Ruthven, gardener; 18 blooms, 6 varieties, 3 of each, first, Mrs. F. E. Lewis, J. W. Smith, gardener; second, Mrs. E. E. Smathers; 12 blooms, distinct varieties, first, J. Insley Blair, David Miller, gardener; second, Mrs. G. E. Lewis; 6 blooms, distinct varieties, first, H. Sidenberg, Alexander Anderson, gardener; second, Richard Colt, John MacIntyre, gardener; most effectively arranged vase, first, Mrs. H. M. Tilford, Joseph Tansey, gardener; second, William Mitchell, R. Ponce, gardener; largest bloom, Mrs. F. E. Lewis; best 3 blooms, first, Col. H. H. Rogers; second, George F. Baker, William Ellings, gardener; 12 blooms, 4 varieties, first, Col. H. H. Rogers; second, Richard C. Colt; 20 blooms, 5 varieties, first, Mrs. F. E. Lewis; second, Mrs. H. M. Tilford; 12 vases of singles, first, Mrs. E. Meyer, Jr.; second, Mrs. E. E. Smathers; 6 vases of singles, first, George F. Baker; second, Col. H. H. Rogers; best collection of singles, first, Mrs. H. M. Tilford; second, Mrs. E. E. Smathers; 8 vases of pompons, first, Mrs. E. Meyer, Jr.; second, Mrs. H. M. Tilford; best display of cut blooms, covering space of 80 square feet, Mrs. H. M. Tilford, first; Mrs. E. E. Lewis, second.

In the vegetable classes Mrs. Jesse I. Straus, Fred Sparks, gardener, carried off the honors.

The Rose classes were closely contested by J. Insley Blair, and Mrs. F. E. Lewis.

In Carnations, Mrs. H. M. Tilford and George F. Baker were leaders.

Dr. Joseph Blake, Thomas Wilson, gardener, won first prize with the table decoration, and Mrs. J. S. Halle, John Watts, gardener, second.

THE MORRIS CO. N. J., SHOW

The Morris County, N. J., show, the twenty-seventh annual, held in the armory of Morris County at Morristown, N. J., on November 1 and 2, was a pronounced success, for which the shows of the Morris County Gardeners' and Florists' Club are noted, both in point of quality, arrangement and attendance. It was a very attractive exhibit in every respect.

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lenge Cup was won by L. L. Dunham, E. Wild, gardener. A Silver Cup was awarded to Mrs. Twombly, Robert Tyson, gardener, for a magnificent group of Chrysanthemums arranged with foliage plants in the center of the hall.

It would be difficult to find more perfect blooms of Chrysanthemums than were to be seen at this show. Joseph P. Day, William R. Fowkes, gardener, was awarded a silver cup for 24 marvelous blooms in 4 varieties. For 15 blooms, 5 varieties, Mrs. T. Fuld, William McIntosh, gardener, won first, and Mrs. H. McK. Twombly scored with 12 blooms, distinct varieties. Otto Koch, gardener of the Morris County Asylum, exhibited a splendid collection of palms, ferns, and other foliage plants and also some fine 'Mums. Mrs. Paul Moore, Donald Crigh-ton, gardener, won first prize with a vase of excellent Japanese singles, and pompoms, and also a vase of splendid singles. Other winners in the Chrysanthemum classes were Mrs. J. O. H. Pitney, Charles Fleisch, gardener, and the Dickson estate, F. Breese, gardener. Among the commercial growers, Charles H. Totty Co. was the only exhibitor but not for competition. In the group class for Chrysanthemum plants only, L. L. Dunham won first; Mrs. Paul Moore, second.

In Roses, Mrs. Twombly, Mr. Day and Mr. Dunham shared honors about equally. Charles H. Totty Co. made a splendid showing arranged for effect. David Frances won honors for a basket of "Butterfly" Roses.

In Carnations, Mr. Dunham and Henry Young, W. R. Seymour, gardener, led with excellent blooms.

Mr. Dunham also exhibited some fine 'Mums in pots, winning with 6 plants, single stems; 12 bush plants, and 6 single plants, all well grown. He also exhibited 12 plants, raised as standards, all testifying to the ability of his gardener, E. Wild, as a grower of 'Mums.

Mrs. H. McK. Twombly had a very fine exhibit of large flowered Begonias which received a special prize. A special prize was also awarded to Otto H. Kahn for his display of foliage plants and 'Mums.

Honors for table decorations went to Mrs. Ridley Watts, Samuel Golding, gardener.

UNUSUAL SPRING FLOWERS

In my border in early May there is no flower so much admired as *Camassia Cusickii*. The tall spike springing from a cluster of lily-like leaves is often two feet high. The pale blue six-pointed, rather large flowers, arranged loosely on the stalk, begin to bloom from the bottom upwards, so that their blooming period lasts several weeks. If they are picked they come out in water and last a long time. The bulb looks like the elongated beet root and in a few years makes large clumps that can be highly rated as soon as the leaves die down which is a few weeks after blooming. We have a native *Camassia* variety, *Fraseri*, commonly known as the White Hyacinth, or Indiana Quamash. It is quite small in comparison with *Camassia Cusickii*. It requires no special care to grow them; they are quite hardy and thrive in the same soil as Lily bulbs. Plant them deep, from six to eight inches, and leave them undisturbed, unless you wish to separate them to make other clumps in your garden. It well deserves to be more widely cultivated.

We all know snowdrops; but how many of us know *Snowflakes*? Its leaves are just like the *Narcissus* with a tall stalk surmounted by a pure white drooping blossom, each petal tipped with bright green. I first saw it in a Kentucky garden and longed for

it; but, not knowing the botanical name I could not order it from a nurseryman, when, lo and behold! one fine spring morning I found one blooming in my garden. I was sure at first the fairies had planted it, but in practical reasoning I decided it must have been a present from my kind nurseryman, sent with a lot of bulbs ordered the Fall before. So, garden-lovers, do not forget *Leucojum vernum*, the Spring Snowflake *Farm and Garden*.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., required by the Act of Congress of August 24, 1912, of "Gardeners' Chronicle of America," published monthly at New York, N. Y., for October 1, 1923.

State of New Jersey } ss.
County of Union }

Before me, a notary public in and for the State and county aforesaid, personally appeared M. C. Ebel, who, having been duly sworn according to law, deposes and says that he is the editor of the "Gardeners' Chronicle of America" and that the following is to the best of his knowledge and belief a true statement of the ownership, management (and, if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, managing editor, and business manager are: Publisher, The Chronicle Press, Inc., 286 Fifth Ave., New York, N. Y. Editor, M. C. Ebel, 286 Fifth Ave., New York, N. Y. Managing Editor, M. C. Ebel, 286 Fifth Ave., New York. Business Manager, D. Ebel, 286 Fifth Ave., New York.

2. That the owners are (give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent, or more of the total amount of stock).

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent, or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.) There are no bondholders, mortgagees or other security holders.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the owners, stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other persons, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities, than as so stated by him.

Sworn to and subscribed before me this 4th day of October, 1923.

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THE SUMACHS

For a colorful Autumn landscape we know of no other genus that offers more desirable subjects for this purpose than the Sumach (*Rhus*), writes Samuel Newman Baxter in the *Florists' Exchange*. It would seem that all the members of this family vie with each other for supremacy in coloring which runs from shades of yellow and orange into brightest crimson. For the small home grounds, perhaps the most desirable is the Smoke Tree, Mist Shrub, or Purple Fringe (*Rhus cotinus* in most nursery catalogues although it is now also referred to as *Cotinus Coggygria*). The common names aptly describe this old garden favorite and refer to the fluffy fruiting panicle in June and July. The oval leaves are unlike most Sumachs.

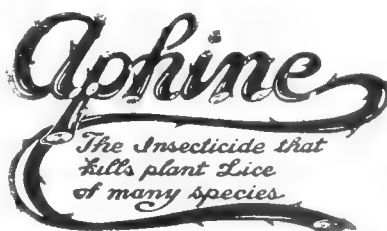
For the larger estates or in parks where a "wild" effect is wanted, the Stag's horn Sumach (*R. typhina*) and Smooth Sumach (*R. glabra*) are most in demand, followed by the Shining Sumach (*R. copallina*). All of these have the typical pinnate leaves, though the stems are "winged" between the leaflets on the Shining Sumach. The Stag's horn Sumach is the tall growing one with fuzzy stems and the *R. glabra* its dwarf counterpart with smooth stems. The last two named have also cut-leaved varieties which are interesting because of the lacy

nature of the foliage. The crimson seed cones are also an attractive feature of these Sumachs and are best appreciated as seen from above where we may obtain the benefit of the foil of fern-like foliage.

Next in popularity with the landscape men especially is the Fragrant Sumach (*R. aromatica*) so named because of the fragrant aromatic odor of the foliage when bruised. This is an ideal plant for foreground planting in the natural landscape, its slightly ascending yet horizontal branches being just suited for this position, and when colored in Autumn, resemble a flame licking the ground. We do not recommend it for the small show place but for park planting it is invaluable.

For an unusual single specimen we should suggest *R. Osbeckii* or *Javanica*, which we have not seen for some time.

All these, and others which we might enumerate are noteworthy for their Autumnal colored foliage. Yes, even the despised Poison Ivy (*R. toxicodendron*) brightens the Autumn landscape. The Sumachs may be propagated by hardwood cuttings, seed or root cuttings, the latter method being evident from the manner in which new plants will spring up in a block where the old plants have been removed, each piece of root which is allowed to remain, providing new plants.



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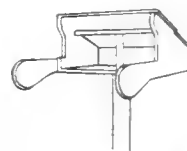
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GARDENERS' CHRONICLE

(OF AMERICA)

Devoted to the Science of Floriculture and Horticulture

Vol. XXVII

DECEMBER, 1923

No. 12

THE FOOTPATH TO PEACE

To be glad of life, because it gives you the chance to love and to work and to play and to look up at the stars; to be satisfied with your possessions, but not contented with yourself until you have made the best of them; to despise nothing in the world except falsehood and meanness, and to fear nothing except cowardice; to be governed by your admirations rather than by your disgusts; to covet nothing that is your neighbor's except his kindness of heart and gentleness of manners; to think seldom of your enemies, often of your friends, and every day of Christ; and to spend as much time as you can, with body and spirit, in God's out-of-doors. These are little guide posts on the footpath of peace.

HENRY VAN DYKE.

Things and Thoughts of the Garden

WILLIAM N. CRAIG

THE great deficiency in precipitation, while it has by no means been wiped out in the Eastern states, has been relieved in some measure so that there is now less probability of evergreens, particularly broad leaved ones, suffering from dryness at the root. There are still, however, far too many amateurs and not a few practical gardeners who make a habit of mulching their rhododendrons heavily with leaves as soon as they fall from the trees. The intention is excellent but the leaves prevent the moisture from reaching the roots of the plants. By all means mulch, but remember that too early covering is very likely to prove injurious. It is a too common practice to cover beds of these handsome broad leaved evergreens with burlap as a winter protection which does far more harm than good, for even when plants look fresh and green when uncovered, a day or two's exposure with a hot sun focussing on them will speedily give them a sickly appearance. Windbreaks for rhododendrons are excellent, and if the plants are moist at the roots and well mulched with leaves they will winter vastly better than when covered overhead.

* * *

A superintendent on one of the large estates near Boston has very great faith in cocoa shells, which he obtains at one of the large nearby chocolate mills, as a mulch for rhododendrons and kalmias. He also makes use of them for bedding his herd of Guernsey cattle on, and claims that they are cleanly, absorb the liquids better than any other material, and that the manure with the addition of cocoa shells gives better results in the flower and vegetable garden than when other forms of bedding are used. That it is a neat form of bedding there can be no question and it would seem as though growers in other sections convenient to chocolate factories might do well to obtain a moderate supply and experiment with it. The price is low and should prove no

deterrent to anyone desirous of doing a little experimenting.

* * *

It is rather unusual to see ploughing in active progress in New England in December, although on one occasion I had some done in Christmas week. It is a wonderful asset to have the month of December mild. Not infrequently frost seals the ground right after Thanksgiving, in fact the most furious and destructive snowstorm I have experienced in America occurred on November 26, 1898. Our cousins across the ocean have a great advantage over us in being able to continue outdoor operations practically the whole Winter, which enables them to get all of their digging, ploughing, trenching, pruning and other operations completed ere Spring arrives. There is time to do the work more thoroughly than we, as a rule, are accustomed to do it here. There are still far too many even among our gardeners, to say nothing of amateurs, who fail to take advantage of these open early December days to complete work which is usually left until the over strenuous springtime.

* * *

A letter from a friend who is a good gardner and an excellent botanist, now located at Coco Grove near Miami, Florida, makes one wish to make a trip there to enjoy the glorious tropical vegetation. Ordinarily we think of Crotons, Pandanus, Acalyphas and other warm house plants, as mere pot plants and occasionally use them for sub-tropical bedding. Near Miami they are seen on all hands, immense bushes 15-25 feet across. In that balmy, frostless region Cocconut, Royal, and other palms in great numbers are 75-100 feet high, Ficus of almost unbelievable size, and Casuarina equisetifolia, the "beefwood tree" of Australia 100-110 feet high and not over 15 years old! The most remarkable growth, however, is that made by Mangoes, Avocados, and Paw-Paws in the

nurseries of the United States Plant and Seed Introduction Station at Chapman Field. Planted out from 4-inch pots last May they are now 10-12 feet high and loaded with their delicious fruits. These are but a few of the many plants described as growing with a reckless abandon in Southern Florida, which makes it the greatest tropical paradise in the United States. It must be very pleasant to live amid such surroundings but methinks if I were located there for any lengthy period that the sight of a bed of our northern bulbs or perennials in Spring, or even a plant or two in bloom of Scotch heather, English primrose or any one of many North American native plants would to quote Harry Lauder "warm the cockles of ma hait" as no tropical flowers could do.

* * *

Already the seed catalogues are coming to hand, and now that the nights are long and we must perforce, for various reasons, spend more time at home than has been our wont, is an admirable time to "read, mark, learn, and inwardly digest" them. There is a good deal of satisfaction to be derived from the careful study of a well arranged catalogue. We may know that the fulsome descriptions are often overdrawn, and are very willing to accept them "cum grano salis," especially when we remember that the bulk of catalogue writers are not practical men outside their own sphere, viz., the seed business. It is true that many novelties offered are not even the equal of existing standard varieties, but there are always some improvements to be found and anyone with even a small garden should be progressive enough to try two or three novelties each season. They may not all come up to our expectations, but if we get one really fine new thing we are well rewarded, and naturally feel doubly proud if our neighbors do not have it.

* * *

Among the very desirable yellow flowering annuals are the *Leptosynes*. Nearly all are natives of California and are closely allied to *Coreopsis*. The foliage more nearly resembles *Cosmos* than *Coreopsis*. We do not see very many of these annuals in our gardens, less than their merits would seem to warrant. While they may be sown outdoors like many of our most easily grown annuals, they will flower much better and earlier if started in a frame or greenhouse. I grew *L. maritima* for many years in pots for spring flowering. It carries its flowers on very long stems and the flowers are large and of a very pleasing soft yellow color. It is a very desirable annual for the greenhouse. *L. stillmani* is an improved variety introduced 25 years ago by Benary, the well known German seed firm. Both varieties make excellent pot plants, and outdoors they seem to thrive especially well in damp soil, although this is by no means necessary for their successful culture.

* * *

Those of us who had horticultural training in Europe will easily remember the beds of the common musk which were grown for the delicious fragrance of its foliage. It would seem as though in even the most humble cottage there was always to be found a pot of Musk, along with *Geraniums*, fancy or show *Pelargoniums*, *Fuchsias*, *Calceolarias* and blue *Lobelias*. The strange thing about this modest unassuming plant is its entire loss of fragrance in late years. The reason for this no one seems able to account for, and after making many inquiries from friends abroad, I have not received an encouraging reply from anyone; all admit that the one time odor has vanished mysteriously. Can it be brought back and retained by any process? When we think of the old musk, we instinctively associate fragrance with it, and without it the plant has but little horticultural value. For several years plants came up freely below the benches

of a greenhouse with me in Brookline, Mass., but none of them had any fragrance. Would artificial culture continued over a period of years be likely to rob this or other plants of fragrance? It seems uncertain when the odor vanished, and we are unlikely to get much desired information on this score.

* * *

Speaking of the common musk, I very well remember how popular the large flowered form *Mimulus moschatus harrisoni* was about 40 years ago and no doubt it is still in commerce. We used many thousands of it in carpet bedding in those days, a time when William Robinson, J. Simpson of Wortley Hall and other hardy plant advocates were hurling scorn and ridicule at carpet bedding and when they had but few agree with them. For bedding purposes in the north of Britain, Harrison's musk was amazingly popular, and it certainly was a great bloomer. There is another member of the *Mimulus* family, native also of California which years ago was prized as a cool greenhouse flowering plant, viz., *M. glutinosus*, called formerly *Diplacus glutinosus*. Once in a while I run across a few of these plants in old greenhouses. The flowers are buff or orange colored, and quite attractive, and there would seem to be a place today for this plant in cool greenhouses. It is shrubby habited and the foliage as its name would indicate is very sticky.

* * *

At Christmas, berried plants are always very popular. Amongst these are the scarlet and yellow fruited *Solanums*, or Jerusalem cherries, which are of very easy culture. Then there are the so called Christmas cherries, a variety of pepper, and the very pretty *Ardiasias* which are of much slower growth and must in consequence command a fairly high price. In addition an increased number of the handsome dwarf Otaheite oranges are grown, but in these northern states we now miss the beautifully berried English hollies, *Skimmias*, and *Aucubas*, once freely imported but now debarred. As we cannot successfully and profitably grow these debarred plants here, what is there we *can* grow which will give us brightly berried plants of moderate size and be of comparatively easy culture. Would it not be possible to grow plants of some of the *Berberis* in pots plunged outdoors through the Summer which would make acceptable holiday plants? Some of the newer Chinese varieties fruit while very small and their fruits are handsome and of a brilliant color, I presume the thorns would be the main objection to the use of *Berberis*, but the foliage of holly is very prickly, and it should be remembered that some of the finest new *Berberis* are virtually evergreen.

* * *

The growing of large single stem chrysanthemum blooms has declined very much in America in late years and the pompons, anemones, and singles have advanced in favor tremendously. In France and Great Britain, on the other hand, the tendency would almost seem to have been the other way, judging by the reports of the great numbers of big blooms staged at the numerous exhibitions recently. The small flowered types are by no means ignored but their importance at shows and in the flower markets seems much smaller than here; this may be in some measure due to the fact that our European friends have a much longer season for the small flowered types outdoors than we do. They start to bloom much earlier there than here and the mild Winters make it easily possible to have outdoor flowers for three to four months. In looking over lists of the best early outdoor bloomers there, I am struck by the fact that the bulk of these do not succeed well here. Probably no two lists of hardy chrysanthemums here would agree, what would do well in

(Continued on page 297)

In the Garden and in the Greenhouse

GEORGE F. STEWART

IN THE GARDEN

WE have now arrived at the close of the year and the beginning of another. Some crops have come out about as we expected, while others have been disappointing. We are told that hope is the last thing in the world; certainly a gardener needs to be full of it, as his whole work depends on co-operation with Nature, and the greatest students of the elements are still very ignorant about its actions. Many of us, who are gardeners, have had little theoretical education, which makes us depend more on the practical and on what we may have picked up by reading and observation. When we have done our best with a crop and the result is more or less of a failure, it ought to bring out what is really in us by the way we take it, for it is easy to do gardening when everything is a success. Sometimes one may have an unreasonable employer (which makes it all the harder to bear a disappointment) who does not seem to be able to understand that gardening cannot be done wholly by rule; the powers of Nature are often too much for any rule man may lay down.

Late December, no matter how we feel its frosty chill, ought to make us glad, as no doubt it did those Judean shepherds when they found that the *Promised One* had arrived to bring deliverance to an oppressed humanity. No thinking man can deny that, with the advent of Christ, a force to be reckoned with for the uplift of humanity appeared on this earth, no matter what our private opinions of Him may be. Early January is here also. If I remember correctly the name of this month comes from a root which means a door. The door of opportunity is ahead of us another year, and now is the time to lay out our plans.

Work in the garden at this season is partly in seeing that the more tender plants have suitable protection against severe frost. If the covering is of leaves, or anything that the winds may blow away, a few branches laid over, will keep it in position. See that the raspberries which are in a location where they are liable to suffer, are well protected. The best way is to cover them with loam after they have been laid low on the ground. However, if this has been by any means neglected until the ground has frozen too hard, they may be tied up and protected with straw. Strawberries, as soon as the ground has frozen quite hard, may be covered with litter. This covering is to keep the plants frozen steadily through the Winter, not to keep them from freezing, so that a heavy covering does more harm than good.

Root crops and potatoes, as time permits, should be looked over and any that show signs of decay, removed.

As time and weather permits, the pruning of fruit trees may be attended to. Pruning is to keep the trees from becoming overcrowded with branches, to assist the formation of fruit buds, and also the preservation of their shape and symmetry. The trees also may be sprayed for scale if this has not already been done. It is advisable to give protection to the trunks of trees against the attacks of mice, which will very soon destroy a tree by girdling the bark; prevention is better than cure.

The lilacs are very liable to an attack by scale and a spray with an insecticide may be given as a preventative even if no scale is seen on the plants.

In localities where spinach remains through the Winter, a slight covering of hay will keep it from freezing and thawing. Of course, we all know that a blanket of snow

is the best covering for plants, but in some localities it comes and goes, making it necessary for us to provide other means of protection.

This is a good season of the year to look over the stock of stakes and bean poles, so that provision may now be made to make up for any shortage, as there is always plenty to do when the time arrives to use them next season. Tools, and flats for carrying and transplanting plants in the Spring may need to be repaired or replaced by new ones. If all these things are on hand, it saves time when the mind is occupied with more important things.

All plants that are in cold frames ought to be looked over regularly, removing any dead leaves from the plants; or if the plants, such as violets and pansies, are planted out, the soil should be stirred around them. If the sides of the frames are well banked with strawy horse manure, mats and shutters, it will keep out the frost. Take advantage of every mild sunny day and air them freely.

Watch the evergreens carefully, should there be heavy falls of snow, and remove the snow as soon as possible. It is easy to damage them in a way that cannot be remedied.

IN THE GREENHOUSE

Seeds of onions may be sown about the first of the year. These, if properly handled, may be used for exhibition next year. We have tried potting them off but have had better results by transplanting them in flats, allowing a good space between each plant.

Successional sowings of lettuce may be made and also of beans, spinach, cauliflower, radishes and parsley. Tomatoes, beans and cucumbers may be grown together in a night temperature of sixty degrees. Lettuce, radishes and cauliflower may be grown in a night temperature of forty-five degrees. Rhubarb may be forced in a temperature of from fifty-five to sixty; beets and carrots around sixty degrees.

Chicory roots should be forced in the dark, also turnip tops and beet tops which make excellent salads. It is all a question of space and time for the enjoyment of these vegetables in Winter. They are of much better quality than those which may be obtained in the open market, grown in the South during the Winter months. There is just as much enjoyment in growing vegetables as there is in growing fancy plants and flowers.

Late December and early January find the greenhouses probably as scarce of flowers as during any period of the year. I refer to cut flowers, for chrysanthemums are about past, which makes quite a difference in getting material to fill a good box of flowers for the use of the family several times a week. On the average place, probably the carnation and the rose are the principal stand-bys. Those who grew the carnations indoors during the Summer, and have looked after all details necessary to their growth, such as cleanliness and food, will see the advantage at this season. The plants will produce more flowers and have better stems than those which are planted out in the field for the greater part of the Summer.

Skillful growers of the rose can time an entire crop to come in at a given period, but in a small rose house, which is the general rule on private estates, this is not advisable. It is better to have one-half of the plant growing and the other half setting buds and flowering. This can be regulated to a certain extent by pinching some of the buds as soon as they set early in the Fall and allowing the others to proceed to flowering.

Begonias will now be in full flower and the temperature may be reduced to make the flowers firm up. They will continue in flower longer and have better lasting qualities. Watch the begonia leaf cuttings and as soon as the first break appears, pot them off in an open, porous soil.

If one has a large plant of *Asparagus sprengeri*, seeds will be ripening on it. These should be picked, cleaned, and sown right away. Fresh picked seed is more dependable than old seed for it germinates more evenly. The warmest corner of the greenhouse is the place for them, and they should be kept saturated with water and a pane of glass placed over the receptacle until they begin to germinate. Six to eight inch pans of this plant are useful for greenery.

Cyclamen seed that were sown in August will now have developed a few leaves. They may be potted in small pots and kept in a night temperature around sixty degrees. A position as near the glass as possible is the best place for them and a slight shade over them until they grip the soil in the pot when the sun is bright.

Carnation cuttings may be secured at this season. The growths that appear on the side of the flower stems make the best cuttings, forming plants that flower more continuously. They may be placed in sand in a night temperature of fifty degrees. Water them every day for the first ten days. It is necessary to shade them on bright days—cheese cloth makes an ideal shade—until they show signs of pushing out roots.

Rose cuttings may also be rooted now. Flower stems, cut with two eyes left on each piece, make better plants than blind wood. This is also true of wood used for grafting. I believe that if more care were given to the selection of wood for propagating purposes there would be no trouble about the deterioration of varieties.

Many years ago *Deutzia gracilis* was more commonly used for forcing than we have seen it lately. I remember when a boy, it was pot grown for this purpose entirely. Cuttings were taken in January and pinched until six or seven breaks were secured. I recall one gardener who used to grow them in his warmest grape house, until they were about two feet high, and then gradually hardened them off until they could stand the full sunshine. He finished them up outdoors and gave them a good freezing. He used to flower every shoot in fine shape in six-inch pots the following Winter, taking them in in batches.

This is the time of the year to secure cuttings for large bush *Chrysanthemums*. Root them as quickly as possible in an intermediate temperature, that is between fifty-five and sixty degrees, and pot them along as they require it in a strong, well fertilized loam. Root the cuttings close to the glass in the full sunshine, watering them twice a day for the first ten days. When I wrote watering, I should have written flooding. If this is done there will be no danger of damping off, and any wilting they will do will not harm them. By the time they dry out, after the ten days mentioned above, they will be rooted.

Keep the *Dipladenias* on the dry side until the end of January. Once a week will be often enough to water them, and have them in a night temperature close to forty-five degrees and exposed to the full sunshine all day. These plants start much stronger and break more evenly in February if treated thus. Much of the failure with these beautiful twining shrubs is due to lack of such treatment, and growing them under too heavy a shade.

Baskets of trailing plants that will be used for hanging on verandas next Summer may be filled in January. Trailing Queen Fuchsias are useful for this purpose. Pinch out the hearts of the shoots until eight weeks before they are wanted to flower. Ivy leaved geraniums are also useful for this purpose but should not be mixed, each variety should be in a separate basket. Another at-

tractive plant for hanging baskets is *Abutilon megapota-micum*, synonymous with *Abutilon vexillarium*. *Othonna crassifolia*, a plant now seldom seen, we have also used for basket work, and perhaps one of the most beautiful is *Lantana sellowiana*, synonymous with *L. delicatissima*.

The Gardenia house at this season needs to be carefully watered and syringed, taking care that the foliage is dry by sundown. Rain water is by far the best for them, and it is well to have it at the same temperature as the house they are grown in, which should be close to sixty-five degrees at night. If they are bench worn, the bench should be well filled with roots to secure flowers at this season of the year.

Poinsettias will be at their height at Christmas; these plants develop their bracts best in a temperature of not less than sixty degrees at night, and all draughts must be avoided. A door carelessly left open, causing a chill, will be sure to result in a loss of foliage. We have found that this *Euphorbia*, and the variety of *Jacquiniaeflora*, are very resentful to sudden changes in the temperature as Fall approaches.

Lapageria alba and *rosea* deserve a place in all private greenhouse collections. I know of no other plant whose sprays lend themselves so well for mantel decoration, if used with *Adiantum* ferns, especially the variety *Farleyense*. The coldest greenhouse is the place to grow them successfully.

If *Eucharis amazonica* has been kept on the dry side about a month before Christmas, a crop of flowers may be expected then. This plant should never be kept in a temperature of less than sixty degrees. Planted out on a bench it enjoys bottom heat.

Sow annuals for Spring flowering, which will fill any vacancies that may occur in the greenhouse in Winter.

A batch of the earliest ripened *Gloxinias* may be started now. They like a good open leafy soil, and a temperature of not less than sixty degrees while they are growing, also grow them well up to the glass and slightly shaded from the strong sun.

Keep the *Schizanthus* close to the glass in the coolest house, shift them before they become pot bound. Large plants, say in nine-inch pots, may be pinched four times before they are allowed to run to flower.

Calanthes as they pass out of flower must be allowed to dry out. They may be taken out of the pots and set on a dry shelf. *Calanthe veitchii* and *sandhurstiana* are among the best of our Christmas flowers and form a charming decoration when arranged with various forms of the maidenhair ferns.

Dendrobium nobile, *D. wardianum*, *D. thyrsiflorum*, are resting. Give them a good drying out until they set their flower buds. The temperature of the house should be around fifty degrees by night. As soon as the flower buds set, dip them in rain water, giving them a good soaking. If they are a little bit shrivelled, they will soon plump up. *Dendrobium phalaenopsis schrederianum* may be kept on the dry side until the young growths are an inch long, as these are liable to damp off, especially if watered with chilled water. *Oncidium splendidum* is throwing up its flower spikes and should be watered well with warm water of about the temperature of the house they are growing in. Weak liquid manure may be given them right up to the time they open their flowers.

Laelia anceps is again beginning to flower. The general complaint is that this orchid is useless as a cut flower but if the stems are scraped a few inches up, they will take water more easily; also split the stem a few inches and use quite warm water, letting them stand in a tight closet over night.

There are now many fine forms of *Cypripediums*. They also enjoy weak manure water when in good health, after

the young growths are well advanced and right up to the time of flowering.

Those that have to force very early grapes may start a house of Black Hamburg by the first of January. After all the many varieties that have been tried for forcing, this grand old variety still stands supreme as an early forcer, and is still one of the best flavored grapes we have. Remove all the loose soil on the top of the border and apply any fertilizer that has been tried and found to produce a good well flavored crop. So far, we have found bone meal, lime, Thomson's vine manure, and Clay's fertilizer very good, and of course, after the vines are growing good and have set their fruit, liberal applications of cow manure water. After the fertilizer has been applied, it may be covered with a light coating of good fibery upland loam. A good watering may also be given, but in an early grapehouse the water ought at all times be at least the same temperature as the border. Start the vines in a temperature around forty-six degrees and about every ten days increase it five degrees at night and ten during the day, gradually working up to sixty-five at night and eighty during the day. Any later grapehouses, if the vines are old and the soil looks spent, may be greatly helped if the roots are gradually and carefully uncovered, shaking the old soil out of them, removing it and replacing with fresh sod. At the same time the roots may be raised nearer the surface, covering them with about four inches of good sod. Of course, we all know the best way to renew with young vines, but I have seen wonders with very old vines treated in this manner, at the same time gradually renewing the fruiting canes.

Pot vines can also be had in fruit very early in the season, if started now, and also peaches and nectarines if houses suitable to their growth are available. Peaches and nectarines require a temperature five degrees lower than grapes.

Strawberries that have been treated properly may be brought into a carnation house temperature. Apples and pears that are well established in their pots may be forced similar to nectarines. Remember that pot fruit needs to be carefully watched as regards watering as they dry out quickly and they need to be fed very liberally.

A good collection of books pertaining to gardening is necessary to any gardener who desires to be successful in his profession, for no matter how good a brain one may be gifted with, he cannot carry all the information necessary to his calling under his hat. There is never a day but what it is needful to look up something pertaining to gardening.

THINGS AND THOUGHTS OF THE GARDEN

(Continued from page 294)

Washington or Baltimore may be valueless even in Philadelphia, and I know that varieties which do finely near New York and in New Jersey are not successes in Massachusetts. What we need for outdoor culture in lieu of named sorts is an early flowering strain, seeds of which can be sown by an amateur and raised as easily as asters or marigolds, and which when planted out in a row in the "cutting garden" can be depended upon to give a fine autumnal crop of flowers. The time is near when we will have these strains offered; they will not displace named varieties but will popularize chrysanthemums tremendously among amateurs. I look to see the time when seeds of early bloomers will be offered in separate colors, although mixtures with their infinite variety of forms and colors will continue to appeal to many.

* * *

The cultivation of our native orchids is but little un-

derstood and it is tolerably safe to say that the bulk of plants collected or bought fail to survive over two seasons. They are not plants for culture in the garden proper but for naturalizing in the wild garden, or in suitable locations in the rock garden they are splendid. The *Cypripediums* as the largest and most showy of the family will naturally appeal to amateurs the most. For their successful culture it is very necessary to provide them with soil such as they have been growing in, and necessary to provide them with soil such as they have been growing in, and necessary shade. I have had good success with the noble *C. spectabile* naturalized, also with *C. pubescens* and *C. parviflorum*, each of which did better than the common *C. acaule*. The latter we often find growing luxuriantly below pine trees where there is a thick bed of decaying pine needles, in which very few plants seem to thrive, but even the addition of plenty of pine needles to the soil and a generous mulch of the same has for some reason failed to suit this plant. The other *Cypripediums* named are much less finicky and in a mixture of loam, leaf mold, and sand do very well. Among our hundreds of warm house *cypripediums* there is no variety today so stately and beautiful as a well grown *C. spectabile*.

* * *

I do not know whether or not the outdoor culture of any of our greenhouse *Cypripediums* has been attempted in the frostless section of southern Florida. There ought to be some varieties which should thrive outdoors there if given a suitable soil and location. It is a fact that not a few amateurs are successful in growing such orchids as *Dendrobium nobile*, various *Cypripediums*, and some *Laelias* and *Cattleyas* in their homes here, and it is surprising how well some of them flower. That some of these orchids are by no means tender is easily proved by the fact that *Odontoglossums*, *Masdevallias* and some other varieties which have been frozen in greenhouses during severe weather, when sprayed with cold water and allowed to thaw out in the dark, have suffered no apparent harm. Plants, frozen in express shipments, have also come out alright. This season I experimented with a small plant of *C. insigne* which had been growing outdoors all Summer to determine what amount of cold it would stand. Temperatures of 30° and 28° failed to harm it; when the thermometer fell to 26° a few leaves were slightly discolored, while a minimum of 24° finally killed it. It would seem that in the tropical region of Florida many of these plants and other tropical orchids should grow tolerably well. Also would it not be possible to sow seeds of such orchids as *cattleyas* and *dendrobiums* on mossy magnolia trunks and have them germinate? Surely these experiments are worthy of a trial, and open up alluring possibilities.

MINIATURE DAHLIAS

It would seem that European *Dahlia* growers are giving more attention to the raising of varieties suitable for garden decoration and cutting, than to the giant flowered exhibition forms. Dwarfiness of habit, too, seems to be an important feature. Anyone who has seen the miniature flowered *Cactus* varieties with their dwarf habit and abundant blooming qualities, as well as the dwarf bedding singles of which *Coltness Gem* and the various *Mignon* varieties are examples, cannot help being impressed. Miniature *Peony* flowered forms are also in being, these apparently being a specialty of J. T. West, an English raiser, who has in the past, introduced many magnificent *Peony* flowered and other garden types of *Dahlias*.—*American Dahlia Society Bulletin*.

Notes From An Old Country Garden

ARTHUR T. JOHNSON, F. R. H. S.

IN both rock-garden and woodland at all seasons, save Winter, the Foam Flower (*Tiarella cordifolia*) is a delightful plant. At the time of writing (mid-November) its pretty foliage, which so tastefully adorns the stony clefts in the rock-garden and the margins of the wild garden paths, is still gay with the crimson and bronze of its autumnal coloring. Nor shall we have to wait very long before the Foam Flower begins to thrust up its flesh-pink, budding spires, for it is one of the earliest of Spring flowers to break into activity. As for the fluffy heads of blossom which last far into Summer, few flowers can create more pleasing effect in the half-shade with a background of green than these. But, being familiar to Americans as a native, one need not dwell further upon the charms of *T. cordifolia*. It has, however, a near relative in *T. unifoliata* (also American) which may not be so well known to my readers. This makes spikes of bloom three or four times as high and as large as those of *T. cordifolia*. Its broad, palmate leaves are some four inches across and they grow in a bold tuft and here have an inclination to remain green all Winter. *T. unifoliata* differs also from the above in one important particular, i. e., it never runs, but remains in one clump. It makes quite a good plant for the border where cool conditions can be provided and it is by no means averse to good living in the way of an occasional top-dressing of old cow manure.

Another little woodlander hailing from the New World which is very happy here is *Cornus canadensis*, the Bunch Berry, a creeping Dogwood of the Rockies and elsewhere. We have established this plant in one or two cool corners and, though not a showy subject, one's interest in it never seems to wane. In Spring and nearly all Summer it provides a succession of its creamy-white, four-pointed stars in their ruffles of green, and in the Fall the leaves develop rich shades of plum-red and maroon.

The Bunch Berry is associated in my memory of good days in many a forested defile of the Rockies with that daintiest of trailing plants, the Twin-flower (*Linnaea borealis*). Strictly speaking, I believe, *L. borealis* actually belongs to Northern Europe, the species (or form of the same thing) common to America and Canada being *L. canadensis*. At any rate, there is no doubt that the latter is much the finer of the two, being not only larger in all its parts, but the elegant, fragrant flowers, nodding on their hair-like stems, are a fuller-toned pink. In our gardens *L. canadensis* also has the reputation for being more easily established than the European form. We find but little difficulty in satisfying this delightful plant, all it seems to require being a half-shady nook with its roots in light vegetable soil and a mossy rock or stump to ramble over. The *Linnaeas* are allied to the Honeysuckle Family and their flowers have a faint odor of almonds.

To my mind one of the most attractive plants in bloom in our Autumn garden is the Winter-flowering Periwinkle (*Vinca difformis*). This has a habit and foliage somewhat after those of *V. major*, but it is not nearly so rampant a grower and in every way a much choicer species. *V. difformis* (media) comes from Portugal and the flowers it bears so liberally during spells of open weather from September to Spring are a cold, icy white with just a thin wash of palest blue to intensify their whiteness. These blossoms, with their sharply-pointed segments, are singularly lovely against the dark, glossy green of the foliage, and they are even more beautiful in shade, to which the plant is by no means averse. *V.*

acutiflora, though similar in all other respects, has its flowers tinged with pale lavender instead of blue. This is probably a geographical form of the above.

A Periwinkle that is entirely herbaceous may make an appeal to those who have to give all but the hardiest subjects a heavy Winter covering. I refer to *V. herbacea*, a pretty little trailing plant which throughout the Summer will adorn any sunny or half-shady ledge in the rock-garden with its long, prostrate branches and leathery, deep green leaves, and maintain a long succession of clear blue, star-like flowers. This appears to be quite hardy anywhere here in a well-drained soil. But as it propagates itself freely by rooting its creeping runners, small plants can always be lifted in the Fall, given Winter protection and put out again in Spring.

Though one of the first shrubs to assume its autumnal coloring *Azalea pontica* (*Rhododendron flavum*) has been among the last to yield. Thus, for some ten weeks the groups of this fine old species have been flaming with brilliant shades of crimson and scarlet, orange-yellow and bronze. I often think we do not value this splendid subject as highly as we ought to do, for it has merits which should give it a place among the very best of its race. It is perfectly hardy, easily grown almost anywhere, it flowers profusely, the large yellow blossoms are deliciously scented and then, to wind-up, there are those gorgeous Fall tints to which I have alluded.

It is by no means uncommon for *A. pontica* to attain the height of 10 feet and to have a diameter of equal dimensions. These old specimens may be rather smaller in the blossom than the younger ones, but when every twig terminates in a truss of flowers, the bush being lit from top to base with a flame of yellow, *A. pontica* can have few rivals, and the delightful fragrance of that mass of blossom will pervade the air of the whole garden. We find that this old favorite prospers and blooms well in very light, porous loam that burns hot in dry Summers, a feat that few of its kind can accomplish.

A little shrub that is always extremely attractive not only at this season but throughout the year is *Pernettya mucronata*. This is a dwarf evergreen from the Magellan Straits and it is probably the hardiest of all South American shrubs. It does not exceed much more than four feet in height with us, but it makes a dense thicket of growth with its thin, wiry stems and innumerable, small pointed leaves which are a very dark glossy green. *P. mucronata* belongs to the ericaceous family and if the little flowers that are produced in May are inconspicuous, the species makes amends for this short-coming by bearing a crop of berries of extraordinary size and in a wide variety of colors. These fruits ripen in early Fall and remain on the shrub until the following Spring—sometimes, indeed, until the succeeding crop appears. They are round, often one-half inch in diameter and afford almost every conceivable shade of color from white through blush to pink; from pink to lilac, purple and mauve and so on to rosy-crimson, blood-red and plum-black. Even little bushes of 6 inches in height are at the time of writing heavily clustered with fruit, and though so near the ground, birds and mice do not seem to touch their amazing yield.

These *Pernettyas*, distinguished by the color of the berries, are, as I have indicated, all varieties of the one species. They are hardy enough to stand 25 to 30 degrees

(Continued on page 302)

Bright Barked Shrubs and Trees, and Herbaceous Evergreen Plants for the Winter Garden

FLORUM AMATOR

BERRIED shrubs and trees are a large factor in a Winter garden, but shrubs with bright colored bark set among the former, and trees with bark in such colors set among the latter, and herbaceous evergreen plants set beneath these trees are the supplement of the berried plants and trees in such a garden.

In Winter the boles and branches of the trees, and the stems and twigs of the shrubs, since they then are devoid of foliage, stand out more prominently and the color of the bark is brighter than in any other season of the year. The small herbaceous evergreen plants, too, peeping through the leaves or snow give a ground finish, so to express it, to our Winter garden.

Green-barked shrubs are rare, but there is at least one, namely, *Kerria japonica*. This bright green-barked shrub is of a notably graceful form, and of low growth, and is admirably suited for planting between such red berry-bearing shrubs as *Berberis thunbergii*. Furthermore, it has the merit of being one of the prettiest shrubs in Summer as regards both flower and foliage.

The number of red-barked shrubs is larger than that of green. The brightest colored of all these, and the least seen, is *Cornus alba sibirica*, whose bark in mid-Winter is very notably red, especially when seen in sharp contrast with the snow-covered ground. There are two other varieties of red-barked *Cornus*, *C. sanguinea*, whose branches are red-barked in Winter, and stand out conspicuously, and *C. stolonifera*, whose slender branches are usually red, but not always, in Winter. The first two may be planted for contrast between black-berried shrubs, such as *Ligustrum vulgare* and *Rhodotypos kerrioides*. The graceful drooping branches of *Tamarix africana* also have a red bark, but this is not so pronouncedly red as that of the *Cornus*.

There are at least two well known yellow-barked shrubs, *Cornus flaviramea*, also called *aurea*, which has bright yellow bark, and *Forsythia fortunei*, which has bark of approximately the same color. Placed between either red or black-berried shrubs the yellow bark helps by contrast to bring out the color of the berries and vice versa.

The *Betula*, Birch, has several species and varieties with conspicuously white bark. We have *Betula alba*, European White Birch, and its several varieties, the bark of which is of a very pleasing silvery white; also *B. papyrifera*, Canoe or Paper Birch, and *B. populifolia*, the American White Birch.

Fagus americana or *ferruginea*, American Beech, has a handsome light gray bark, and *Platanus orientalis*, Oriental Plane, after the outer bark peels off in the Autumn has a beautiful and unique creamy white trunk and branches throughout the Winter season.

Several of the *Salix*, Willows, have yellow bark, *S. elegantissima*, Thurlow's Weeping Willow, has on its long, spreading and drooping branches a yellow bark spotted with brown. *S. vitellina*, Yellow Willow, has a yellow bark on its branches, and that of *S. vitellina aurea* is even more yellow than any of the other Willows. *Salix vitellina britenensis* has strikingly conspicuous bright red bark. There is at least one quite handsome tree, namely, *Tilia euchlora* (*dasystyla*) the Crimean Linden,

whose young branches are covered with a bright green bark. It would seem as if Nature had reserved green almost exclusively as the color for the leaves of trees, shrubs, and herbaceous plants, and had been very negligently in her contribution of that color for bark and for flowers.

All of these trees should find a place in our Winter garden. The smaller trees with bright colored bark may be set to advantage between and on the same line with berry-bearing trees, and the larger between and somewhat back of the line.

First in this class come the hardy evergreen ferns, to which the partial shade afforded by the trees and shrubs in Winter and the heavier shade in the Summer, when the trees and shrubs are clothed with leaves, is grateful. In this category are our well known native ferns found in rich, and rocky woodlands over a wide extent of our country; *Asplenium marginalis* (*Aspidium marginale*) Evergreen wood fern, whose fronds are quite thick; *Asplenium spinulosum* (*Aspidium spinulosum*) Shield Fern, whose fronds are finely dissected, and *Polystichum acrostichoides* (*Aspidium acrostichoides*) Christmas Fern, the best known of all, whose fronds are a shining dark green. These will soon become established in our garden.

Iberis sempervirens, Hardy Evergreen Candytuft, and its variety, Little Gem, and also *I. gibraltarica* should find a place in the foreground of our Winter garden, where it will flout old Hiems by blooming soon after he gets out of the gate, making way for Spring.

Vinca minor, Periwinkle, is admirable in a Winter garden; the thick leaves of the species are of a dark, shining green. This evergreen trailer, once established, will soon cover bare or strong places. There is a variety of *V. minor*, namely, *argentea*, whose foliage is splashed and marbled handsomely with gray and white and is known as the Silver Periwinkle, and another variety *aurea*, the Golden Variegated Periwinkle, whose leaves are variegated prettily with golden yellow.

There are a number of native plants, besides the ferns, which are evergreen and which should surely have a place in our Winter garden. Here *Epigaea repens*, Trailing Arbutus, one of the smallest, shyest, sweetest, and prettiest of all our wild flowers, with its neat evergreen foliage will thrive if anywhere in cultivation. Well under the shade of the trees we may plant the two *Pyrolas*, namely, *Pyrola elliptica*, shinleaf and *Pyrola rotundifolia*, the former found in rich woods from New England to Maryland, Iowa, Minnesota and northward, and the latter in damp sandy woods throughout the continent, south to Southern Georgia. The thick, shining leaves of *P. rotundifolia* resemble strongly those of *Galax*. Eligible also for our Winter garden are *Chimaphila* (which means Winter-loving) *umbellata*, commonly called Prince's Pine, and *Pipsissewa*, whose sharply serrate leaves are of a shining green, and *P. maculata*, whose common name is Spotted Wintergreen, because its leaves are variegated with white, but this is not to be confused with the true aromatic wintergreen. These two *Chimaphila* are found in dry woods, the former from Nova Scotia to Georgia and west to the Pacific, the latter from New England to Georgia and west to Minnesota and Mississippi.

How to Attract the Song Birds Around the Home

JOSEPH H. DODSON *

IT is a comparatively easy matter to attract all of the song birds around your home on account of the trees, shrubs, flowers, gardens and grass, and the natural beauty of the grounds. Our song birds (insectivorous birds) are a real asset and should be protected from an economical standpoint, aside from their beauty and song.



Winter at "Bird Lodge." Note the Food House in the Foreground

as the natural protectors of our trees, shrubs, forests, gardens and greens from insect pests. The value of our song birds to man is based principally on their feeding habits. Their greatest help is through their activity in eating harmful insects, their eggs and larvæ. Without this constant aid we would be powerless to protect our trees and crops from the ravages of caterpillars, beetles,



Food House and Bird Bath

flies, gnats, etc., and with a colony of these wonderful birds you will not have a mosquito in your vicinity. And if there is anything in the bird world that represents home life, it is a colony of beautiful purple martins. Contentment, happiness, prosperity is here and the cheerful social twitter of the martins and their industrious habits are a continual sermon from the air to their brothers of the earth. So those who love the martin for his cheery social nature and his inestimable worth should do something at once to educate those who do not appreciate

this valuable bird. Martins live in colonies and are encouraged by the placing of colony houses.

Our Agricultural Department reports that the loss to our crops, gardens, trees and shrubs from injurious insects in 1922 was \$1,400,000,000. (The codling moth and curculio apple pest cost us \$12,000,000 a year in the reduced value of the apple crop, and more than \$8,000,000 a year in the cost of spraying the trees to keep them from destroying even more.) The loss can be entirely eliminated if we increase the number of our song birds to what it was before the building of our great cities, and the denuding of our forests, which have taken away the birds' natural nesting sites. Even if a bird should find a hole in a tree suitable for a nesting site, the tree surgeon comes along and fills it with cement. He does good work by saving the trees, but the birds are left without



Cement Bird Bath, Popular with Song Birds Because It Slants Gradually from Edge to Center

places to build nests. Therefore, it is necessary that we should furnish them with man-made houses and shelters in which to build their nests and raise their young, and with sheltered feeding stations where they can find food

flies, gnats, etc., and with a colony of these wonderful birds you will not have a mosquito in your vicinity. And if there is anything in the bird world that represents home life, it is a colony of beautiful purple martins. Contentment, happiness, prosperity is here and the cheerful social twitter of the martins and their industrious habits are a continual sermon from the air to their brothers of the earth. So those who love the martin for his cheery social nature and his inestimable worth should do something at once to educate those who do not appreciate



Feeding Table and Bird Bath

places to build nests. Therefore, it is necessary that we should furnish them with man-made houses and shelters in which to build their nests and raise their young, and with sheltered feeding stations where they can find food

and shelter in times of stress; these should be put out now. The feeding shelters should be kept stocked the year round so that the birds will know that they can always find the food they require, and shelter at a given place. I am satisfied that my great success in attracting the song birds around beautiful "Bird Lodge," my home on the Kankakee River, is due to the fact that our song birds know that they can always find food, shelter, and protection from their enemies at all times. I can actually predict the approach of a storm twenty-four hours in advance by the number of strange song birds that fly into our grounds for food and shelter.

Now, it stands to reason that a bird is going to build where it can find nesting material most easily; therefore, this should be furnished them. It consists of string and twine cut into six-inch lengths and old gunny or potato sacks cut into six-inch squares. This material should be fastened securely on the inside of the shelters so it will



*Small Sparrow House in the
"Bird Lodge."*

always be ready. The birds love to pull this out and weave it into their nests. It is also a good idea to tack these squares up in different places on the grounds out of sight of the human eye, but where the birds will readily find them. Pans of mud should be furnished for the birds that wish to cement their nests together. It is very interesting to watch them shove a piece of string down in the mud and then carry it to their nest and hold it in place until the mud sets. Many of our song birds such as the robin, cardinal, and rose-breasted grosbeak, cat-bird, and brown thrasher cement their nests together with mud.

Bird baths should be put out and supplied with fresh water, as nothing will attract the song birds to your grounds as much as a number of the right kind of bird baths, placed in different localities where the birds can always find water to drink and a place to bathe. They

prefer shallow drinking places and are afraid of large bodies of water, but when they become accustomed to seeking water in a given place, they will always go there. Another great attraction for the birds is the planting of trees and shrubs that will provide food in abundance for them and the planting of these beautiful trees and shrubs are really necessary to insure success. I have spent practically a lifetime in selecting and collecting these varieties, which are just as hardy and far more beautiful than



Purple Martin House at "Bird Lodge."

ordinary shrubs, as they have first the bud, then the flower, and then the fruit. There are so many varieties that they furnish a complete supply of food for the birds, practically the year round.

After attracting the many song birds to your grounds, protection from their enemies is absolutely necessary, chief of which are the cat, house sparrow (English sparrow), red squirrel, skunk, fox, crow, cooper and sharp shinned hawk. The cat is the worst enemy, and takes an awful toll from our song birds. It is a fact that every cat will catch at least fifty song birds a year. At our last census there were 185,000 farms in the state of Illinois and our census recorded the fact that every one of those farms support a cat; some of them have many. On one farm fourteen were counted. For the sake of argument let us admit that every farm in Illinois has a cat, allowing that the cat only catches fifty birds a year, which is conservative. This amounts to nearly ten million song birds caught in the State of Illinois alone, and this does not include cats in cities and towns. There are more cats in the eastern states than out here. This being the case, is it any wonder that our song birds are decreasing in number?

Robins are more easily killed than other birds because they trust us most. They seem to feel confident that their gratuitous work is so valuable, their song so sweet, and their love for everybody so deep that nobody would want to hurt them; then all of a sudden the cat's fierce teeth fang its breast, and the bird's surprise is boundless. With a look of conscious agony the bird seems to say, "If I must suffer this strange death, won't some one take my little ones this breakfast which I gathered for them

before I had eaten myself?" Shall we be chided for espousing the cause of that bird?

The house sparrow (English sparrow) is a terrible enemy of our song birds. It fights all of them, tears up their nests, breaks their eggs, and kills their young. Besides that, it is a pest; it is dirty, noisy and quarrelsome. I am satisfied that I never could have been as successful as I have been in attracting the song birds around my home, lovely "Bird Lodge," if I had not eliminated this "rat of the air," with my sparrow trap. J. Andre Mottu of Norfolk, Virginia, recently wrote me that he caught 11,241 sparrows with this trap. This is the record catch, although I have several friends who have caught from three to five thousand of these pesky little varmints through the use of my sparrow trap. The sparrow is a grain-eating bird and should be classed with the chicken. They are good to eat, tasting like squabs and there is no reason why we should not eat them. They have eaten sparrows in the old country for centuries. There are millions of them and everyone eats its weight in grain every day. Everything has its uses. Don't be prejudiced; the sparrow has been used for food in Europe for years and sold for seven cents apiece during the war. Sparrows in a pie have very often been mistaken for squabs.

There is no doubt, if facilities are provided, that you will be astonished at the number of beautiful song birds that can be attracted to your grounds, and the best part of it is, that many of them will stay with you all Winter. The cardinal grosbeak, for instance, will not migrate if it can find food and shelter. The birds that do migrate return to the same houses year after year and with their natural increase, your grounds will soon become a veritable bird paradise. Make friends with the native song birds. They richly repay for the trouble you take in looking out for their interests. Many who have only a little patch of city garden have induced song birds to live with them, through my advice. The birds make no distinction between the rich and the poor.

In connection with this article, illustrations are shown, how birds may be properly cared for. The houses should be left up the year round, as they furnish building sites in the Summer and shelter in the Winter. Many birds stay with us in the north all the year; others go south chiefly because they cannot find food and shelter during the Winter in the northern states. Many species will go, of course, for love of warmth and sunshine, but a good many birds can be kept north all Winter if they are provided with food and shelter. I have proven this after years of effort.

It has added a great deal to my pleasure to have the birds stay with me, some of them only a month or two longer than they used to stay, some of them all Winter long. Few people realize how many birds starve to death during the sudden cold snaps, particularly when the snow covers the ground. Well stocked food houses and sheltered feeding tables are life-saving stations. I wish all realized this; I know everyone would lend a hand in feeding birds and would teach the young folks to look out for feathered friends. It seems to me that boys and girls of our bustling times are not taught to be as thoughtful as we used to be. This is not a peevish cry of "Those were the good old days." I believe we are going to have still better days for our song birds, because the American people are becoming alive to the great need we have for our native birds and the wonderful service these birds give in protecting our trees, shrubs, grains and fruits from harmful insects.

My suet cake, made of suet, sunflower seed, my grain mixture, and ground nuts, grinding shell and all (they must have the shell for roughage), is the most attractive

and necessary food for the birds that stay all Winter, being a balanced ration which contains everything necessary to sustain bird life. The birds will require very little or no attention in the matter of food during the late Spring and Summer, but early in the Spring and in the Fall and Winter it is well to take care of them. My experience has proven to me that two feeding devices are better than one. The larger and stronger birds will invariably drive away the smaller and weaker ones, perhaps at the very time they really need food.

Purple martins, bluebirds, wrens, flickers, or gold-winged woodpeckers, white bellied or tree swallows, chickadees, nuthatches, and flycatchers are the most easily attracted to man-made houses. They are, also, among the most valuable, most sociable, and most delightful of all birds. There are dozens of other birds, however, which are won by setting out bird houses. Among the three or four hundred birds which live in my garden are robins, scarlet tanagers, orioles, cardinal grosbeaks (red birds), cat birds, brown thrashers, warblers, flickers, rose-breasted grosbeaks, humming birds, juncos, song sparrows, wood thrushes, vireos, cedar waxwings, downy and red-headed woodpeckers and many others. Some of these insist upon building their own nests; but they benefit by my bird baths, and build nests on my shelter shelves, or "invitations to nest," as I call them. They all know they are welcome. One song bird attracts another, knowing they are protected from their enemies.

I have always been interested in birds; even as a boy I built wren, martin and bluebird houses and studied their habits. Talk about the busy bee, it is not to be compared with a mother martin feeding her four young ones. It is amusing to see their mouths wide open. The mother starts feeding with number one and with careful rotation number two is fed next; then number three, and when number four's turn comes, its mouth is surely wide open. After it has been fed the mother will start all over again with number one, which by the way, is always the smallest and weakest bird. How do I know this? Because I watch them with powerful binoculars which bring them up so close that I can see their every move.

To win birds for the beauty and sweetness they add to our lives is really a great joy and one that renews itself each year; it becomes a source of greater and greater pleasure every year to live with the birds. I loved and worked for the birds for many years before I appreciated fully their value to the world as protectors, God-sent, against the devouring insects.

NOTES FROM AN OLD COUNTRY GARDEN

(Continued from page 298)

of frost and are not particular as to soil. It is said that they will even do with lime, an element to which most of their natural order object, and though they like sun they will put up with and berry freely in semi-shade. Propagation is easily affected by division, suckers, cuttings or seed. We use these shrubs as dwarf ornamental hedges, grouped in beds or about the margins of shrubberies or woodland paths and for forming a carpet, or undergrowth, for the taller brooms, laburnums, hawthorns and other flowering shrubs that are apt to get leggy.

If we read intelligently and seriously the signs of the times, we come to the conclusion that religion, not as mere profession, but as believed and practiced agreeably to the teachings of Him who spake as never man spake, is the supreme need of our generation. And it shall be true of every generation to "the last syllable of recorded time."—*The National Pictorial Monthly*.

The Gardener's Opportunity

M. C. EBEL

AT the annual Fall exhibition of the Horticultural Society of New York, and at some of the other Eastern shows there appeared in the list of successful prize winners a number of new names which have not heretofore been noticed as exhibitors.

Does this not indicate that the old time interest in flower shows is being revived and that the owners of country estates are again disposed to support flower shows as liberally as they did before the war caused a curtailment of expenses? I think so. I know of two instances where gardeners, only recently placed in charge of the estates but who quickly gained the confidence of their employers, sought their permission to exhibit at the Fall shows. Consent was granted, but with grave doubts that the gardeners could successfully compete against the regular exhibitors with such short preparation. The results proved otherwise, however, and I am now looking for great achievements at the International Flower Show next Spring from these two estates, although they have never exhibited before, as the owners have now become interested and their gardeners are quite enthusiastic.

There are many other employers like those just referred to, but there are also many gardeners who hesitate to approach their employers with suggestions or recommendations that might revive old or instill new interest. But why should they hesitate when the suggestions or recommendations they might make would be to the benefit of their employers? The employers cannot fathom what may be stored in their gardeners' minds that would tend to improve their estates.

No greater opportunities present themselves for the professional gardener to exploit his skill than the events that are to occur in the Spring of 1924—the International Flower Show at New York from March 17 to 22, the National Flower Show at Cleveland from March 29 to April 6, and the National Orchid Show at Boston in May. The time is none too soon to begin preparations.

These shows are as dependent for success on the small grower as they are on those who may compete in the larger classes, for it is the smaller classes for specimen plants and for one or two dozen cut blooms which help to make the shows interesting. The public enjoys studying the individual plants which is not always possible when the plants are gathered in a group of many varieties. As for Madame Estate Owner, she is gratified with her gardener's success when she observes her name in the press among the list of prize winners, and it does not really matter to her what the exhibit is, if it secures the honors.

It is at the flower shows that estate owners often begin to "sit up and take notice." They see the exhibits from neighboring estates and wonder why they cannot have the same high quality of flowers as their neighbors show. Then they begin to feel that while they are paying the bills, they are not obtaining the results. This is not always their gardeners' fault, for the disbursements are not always sufficient for the results they desire. But how are the employers to know this, if their gardeners do not intelligently inform them how much more could be accomplished in making the estate attractive through a little additional expenditure?

When a man is placed in charge of a business, he is expected to produce certain results, and if he cannot, it remains with him to make known the reason why. When a gardener finds that he is not producing satisfactory results, due to certain restrictions or limitations, in justice to himself he should inform his employer why the

results are unsatisfactory. In doing so, he may succeed in having the restrictions removed; at least he is performing his duty in informing his employer why the anticipated results are not forthcoming. There is no question but that the employers are demanding more and more that their gardeners possess initiative to recommend how an estate may be improved in order to provide more pleasure for its owner, and not merely be able to "keep a place up." They are looking for quality in their gardeners as well as the ability to work, and can see no reason why they should not have it. Sometimes it becomes necessary to explain that they are not paying the price of quality, but this is usually met with the response that they are willing to pay the price if they can obtain the quality.

This is no mere theory, but is based on what actually transpires in interviews with estate owners from all parts of the country who visit our offices. We are meeting with an entirely new class of owners of country estates, men still actively engaged in business who are acquiring estates somewhat as toys with which to play and for the sake of the joy they may derive from them.

The employers are manifesting much interest in the affairs of their gardeners through their support as sustaining members of the gardeners' national association, by the way they entertain them during its annual conventions, and in patronizing the association when knotty problems arise in connection with the management of their estates. It remains with the gardeners to continue to increase this prestige by showing that if given but half a chance, they are desirous and interested in minimizing the annoyances that estate owners have sometimes to contend with; for when all is said and done, it is really a fifty-fifty proposition.

Let us start now to do our share to make the big shows of the Spring of 1924 a tremendous success. Their success will arouse a greater interest in American horticulture and this spells greater opportunities for the professional gardeners. You, as a gardener, may not be in a position to prepare anything for the big classes, but you must be unusually handicapped if you have some glass and cannot grow a specimen plant—something not commonly grown—or a few dozen blooms to exhibit. It is far more creditable to be able to say when the shows are over, "I also ran," than to have to confess that you did not try at all.

There is nothing on earth today that will heal the jealousy and hatred that is permeating it, as will the love of flowers, for he who loves flowers, must love God, and he who truly loves God, cannot long hate his fellow men. So fellow gardeners, yours is a great mission through the ministry of flowers. Interest your employers in it. Approach them as friends, for if you have your employers' confidence, you will surely find that they are your friends and that they will give their co-operation and support to any good motive you may present to them. It is through better gardens and more flower shows that this gospel of the flowers can be spread.

The Golden Rule, correctly called also "The Rule of Christ," is, "All things whatsoever ye would that men should do to you, do ye even so to them." This is the absolutely perfect rule; therefore, nothing can surpass, equal, or eclipse it. If the human race would reduce to practice the Golden Rule for half a century, the brotherhood of man would be a living, breathing, blissful reality.—*The Herald, Washington, D. C.*

Collecting Orchids in Central and South America

(Continued from November issue)

INASMUCH as arrangements were now completed with reliable native collectors, I turned my attention to the business of collecting in the Andes around Bogota. In this region at an altitude of 9,000 feet, only terrestrial orchids are found. Some interesting genera, such as *Pleurothallus*, *Stellis*, and *Odontoglossum*, were very prevalent. The latter genus is notable for its yellow-flow-

seen. For the Andes of Bogota, the hills are extremely rich in the orchids mentioned, and in general the flora is much richer. I was very highly interested in a white-flowered *Epidendrum* which I finally succeeded in reaching and bringing back for the Garden collection.

"On June 10 I was highly delighted to receive a telegram from the *Cattleya Trianae* collector at Natagaima, stating that the orchids would shortly be leaving that region and that the natives had brought in 50 arrobas more than he was supposed to purchase. My reply was that I would take all that had been collected.

"My next trip was to Girardot, the uppermost port of the Upper Magdalena River. Here I found fifty cases of the coveted *Cattleya Trianae* in the Norman Black warehouse awaiting my inspection. A half-dozen cases were unpacked, and I found that my instructions regarding packing had been carried out to the letter. The shipment was now ready for its homeward trip. The plants in this shipment were collected near the small village of Natagaima, where my native collector had his base of operations. From here he spread the news that he was in the market for 'Tulipans' and the natives immediately got together their pack-mules and started in all directions on the orchid hunt. After a period of three to four weeks the natives, with their pack-mules loaded with 'Tulipans' roughly tied in bundles, began to arrive. These were bought by the collector for so much the arroba. They were then cleaned and put under cover to dry, then packed in the cases without any packing material whatever. The most important feature was to see that the plants were absolutely dry when packed, otherwise they will rapidly begin to rot.

"The next lap of the journey was by mule back to



Leaving Upper Magdalena River on Raft en Route to the Navigable Port of Girardot.

ered species, *flavescens*, which is often mistaken for *Oncidium* when first seen. This species evidently will soon become extinct, since the natives collect the plants, strip off the leaves, and carry the pseudo-bulbs down to the market place where they are sold for food. We first discovered this species through the remains of the leaves which had been torn off and left on the trail. Another interesting orchid which is familiar in our collection is *Epidendrum*. The majority of the species are of epiphytic habit, but those in this region are terrestrial. They may be found growing either along the hedge-row in company with various other tall-growing plants, or in dense shade. The most common species noted is the pink-flowered *Epidendrum elongatum*.

"In addition to collecting orchids my attention was now turned to the collection of herbarium specimens. One of the most common plants here is the dandelion, which is of course imported with European or American grass seed. Drying specimens for the herbarium is not a very easy proposition in Bogota because of the moist atmosphere. After these daily trips all specimens had to be placed between drying pads and finally put in press to prevent spoiling. On an average it took ten days to two weeks to prepare specimens, all the drying papers being changed daily.

"A place of interest, both because of natural scenery and as a collecting area is Tequendama Falls. From Bogota, you can go by train to within three miles of the Falls and the remaining distance by ox-cart. The falls are not very large from the standpoint of volume of water, comparing them with Niagara, but they have a drop of over 300 metres. I think the natural scenery surrounding this area is the most picturesque I have ever



the Upper Magdalena River, twenty-five miles with two cases each being required. Here a large double-decked coffee raft was waiting. On this raft the cases were floated down the stream to my base of operations in Girardot. From there they were again freighted on mule back to the Norman Black warehouse, near by. The next part of the journey after their final inspection and O. K.

was in the hands of Norman Black. From the warehouse to the boat by pack-mule again, by steamer to Beltran, by train from Beltran to La Dorada where they were again unpacked and taken to a steamer on the Lower Magdalena River to continue their five or six hundred-mile trip to the coastal town of Barranquilla. From there they were sent by train to Puerto Colombia; from there by ocean steamer to Panama, where they waited to be transferred to a New Orleans steamer. At New Orleans they were taken in charge by our agents and shipped to East St. Louis by fast freight. To hasten delivery at the Garden, automo-



Crossing the Rio Vieja

bile trucks brought them to the Garden without awaiting transfer across the river by the Terminal Railroad. This itinerary of the orchids from their native environment to their new home emphasizes the fact that the biggest factor of expense is transportation and not the original cost of the orchids.

"After successfully getting the plants which I had been sent for, my thoughts now turned towards home. Unfortunately, most of the Magdalena ports were under quarantine for yellow fever which was prevalent in the Bucaramanga region, so I was advised to go by mule back over the mountains to the Pacific port of Buenaventura.

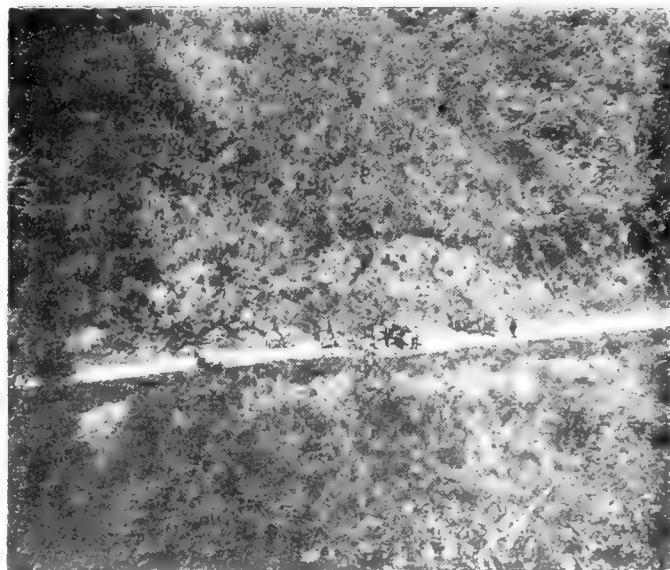
"Before leaving Girardot we bought medical supplies, etc. We went from here to Flanders and here caught a train to Ibagué, the capital of the Departamento de Tolima. After locating the agent who furnishes mules for such trips we were informed that it would take nine mules and four horses to carry ourselves and freight, which included our trunks, two cases of orchids, an herbarium press, etc. To make the packs waterproof, everything had to be wrapped in American tar-paper and roped on the outside. We left Ibagué at daybreak. My Spanish friend and myself were not expert horsemen. However, the Ecuadorean, who was brought up in the mountains of Ecuador, was qualified for the trip, and the Virginian had previously belonged to the United States cavalry, so he was likewise an experienced horseman. We had three expert guides, each carrying his famous machete about two feet long.

"Our first objective after leaving Ibagué was Caja-Marca, where we arrived at dusk and managed to secure a shelter for the night. The next morning we were up again before daylight, our guides informing us that today's trip was the most dangerous of the four days, inas-

much as we would have to climb to an altitude of 10,000 or 11,000 feet by the Quindeo Pass. We were advised to ride mules for the day as they are very much surer-footed, this being essential in view of the narrowness of most of the trails. We rode mules for the first three hours and then changed to our horses, deciding that we would sooner take the chance than go further on mule back.

"The second day we were to make the town of Armenia, which was a hard day's ride, before dark. We eventually climbed to and were safely crossing the Quindeo Pass. The scenery throughout the day was indescribably beautiful. Crossing the Pass I noticed a large red fruit that looked like a strawberry. Stopping my mule, after a short climb, I found it to be a raspberry larger than the largest strawberry I had ever seen. My friends, who had not been so much interested in my orchid material, became alert at sight of this edible fruit. I found three ripe fruits and exclaimed 'This is the best find I have had yet; I will take the fruit home and try to introduce this large variety.' My friends replied: 'That sounds very nice, but we have allowed you to stop frequently for your blamed orchids and now that you have found something decent to eat you even want to take that away.' Three against one was too much for me, so the large-fruited raspberries were lost to science. I afterwards found that the natives called these 'moras.'

"After finishing our costly (to me) dessert we started to descend to Armenia which we could see in the distance but alas a few hours' hard ride away. The progress seemed to be somewhat slow so we spurred our horses ahead; otherwise we would have had to stay in the mountains for the night. Just before dusk, with the town in the distance, our leader said we would have to speed on to make the town. My horse evidently had usually led the pack-trains because he made speed only when in the lead, so we were placed at the head. We started down grade on a half-way decent road at full speed. The Virginian, who was bringing up the rear, and who carried a revolver, decided to pull off a little Wild West show by



On the Trail Toward La Mar

the aid of his gun. The horses, evidently not used to such demonstrations, became somewhat frightened and increased their speed. This would have been to our liking had not my horse suddenly collapsed after one of these spurts. The only things I remember were flying hoofs and having the presence of mind to turn out of the way of the mule which was following. Before my friends could dismount I was up and helping the horse. The

Ecuadorean came up as white as a sheet and started feeling my legs and arms to see if any bones were broken. My friends said that my horse turned two somersaults and I turned three. It was evidently a lucky escape for me. If any bones had been broken it would have meant waiting for expert treatment until we reached the far-off town of Panama. However, I received nothing worse than abrasions on knee, hip and elbow. The horse could not be ridden the second day.

"We eventually arrived at Armenia without any further mishaps. After a hard day's ride over trails averaging four to six feet in width, with a drop of 7,000 feet on the side, we were ready for a good night's sleep.

"We again set forth in the morning. Inasmuch as my horse was lame, I mounted a mule for the day. Our objective for that night was La Maria. The scenery throughout the day was extremely interesting and I saw many orchids, both epiphytic and terrestrial. At noon we were approaching the River Vieja when our guides informed us that we would have to ferry across. The ferry turned out to be two hand-made canoes, about seventy-five feet long by three feet wide, tied abreast. These were attached by a ring to a cable stretched across the stream. As the canoes were poled along the ring slipped along the cable, thus keeping the ferry in a straight course. The river was about 150 feet wide and some thirty feet deep. It took about an hour and a half for the entire pack-train to cross, since all freight had to be unloaded from the mules and taken across separately, with the exception of the mule carrying mail, whose pack was left on his back. Most of the time was taken up in trying to force the mules to enter the canoes.

"After all were across and the mules repacked, we immediately started an ascent of several hundred feet, almost at a perpendicular. We passed some very interesting vegetation, especially *Lantana camara*, a variety of which is used extensively in our summer bedding. I also saw various species of begonias and araceous plants, such as *Anthuriums*, etc. Of particular interest was an entire hillside of tree ferns which were very tempting. However, the cost of transportation was prohibitive. We finally arrived at La Maria at dusk.

"We started on the fourth day's journey with Zarzal as our objective. During this day I was able to collect several epiphytic orchids which were brought back to the Garden. We reached Zarzal at noon and from here secured automobiles which brought us to Tulua at four o'clock. The next morning we left on the 'Ferrocarril del Pacifico,' or Pacific railroad, for Cali. We were advised not to leave Cali for the seaport of Buenaventura until our reservations for sailing were assured, because of the lack of good hotels in Buenaventura. So the Virginian and I, after two days in Cali, said goodbye to our friends and left by train over the mountains to Buenaventura. The scenery across the Western Andes is very picturesque. In spite of the fact that the journey is an all-day trip and very tiresome, it is extremely interesting for the botanist, observing the vegetation, varying according to the altitude. On nearing the Pacific coast one is particularly struck with the wonderful varieties of *Anthuriums*, *Philodendrons*, and ferns. We reached Buenaventura at five o'clock in the evening and sailed the next day, Monday, on the Panama-Pacific freighter, 'General O. H. Ernst,' for Panama, and arrived at Balboa early Wednesday morning.

"My first act was to locate C. W. Powell, whom I had previously cabled of my arrival. After leaving my baggage and plants in his care, I again boarded the steamer and took the trip through the Panama Canal.

On my return I was the guest of Mr. Powell for a week, during which time I went through his collection

of orchids thoroughly. On leaving, upwards of 200 plants were given me for the Garden, many of which are new to science and brought to this country for the first time. In exchange I presented Mr. Powell with one case of my Colombian orchids which I had brought with me.

"My next objective was the West Indies, and I arrived at Kingston, Jamaica, after a two days' trip. A week was spent in Kingston, the principal place of interest being the Hope Botanic Gardens. Through the courtesy of the Director I secured a shipment of large tree ferns, so necessary for our tropical fern house. These were obtained in the region of the Castleton Gardens, about fifteen miles from the Botanic Gardens. Various orchids and economic plants were also given me in exchange for a case of Colombian orchids which I had brought with me. I finally sailed for New York, bringing with me two crates of plants aggregating 900 pounds. On arriving at New York I was met by a special government representative. After various preliminaries, I finally placed the shipment in the hands of the American Express Company, thus terminating my responsibility for the expedition.

"My first communication from the Director notified me that the Colombian shipment had arrived in New Orleans. I immediately started for St. Louis and upon arrival found the imported orchids in every nook and corner of the houses, demanding immediate attention. Within the first month we had arranged in permanent baskets over 3,000 plants. Prompt action was necessary as the plants had come through in excellent condition and had started new growths which when developed produce the large mauve flowers. The sooner the plants could be permanently established in their baskets the more rapidly would the growths develop, with more chance of producing flowers at the scheduled time. The plants will undoubtedly produce their best display next year.

"The latter part of September twelve cases of *Cattleya Schroederæ* were received at the Garden. These were contracted for before I left Bogota. This is but half of the plants ordered of this variety and it remains to be seen whether any more will be shipped. Considering the length of time on the way the plants arrived in excellent condition."

AROMATIC CREEPING WINTERGREEN

ANOTHER candidate of good character for our gardens is *Gaultheria procumbens*, Aromatic Creeping Wintergreen, a plant on the border line between a shrub and a herbaceous plant. This plant, which has pretty evergreen leaves, is found in cool, damp woods, from Maine to Minnesota and Southward to Georgia, and also northward. In addition to the common name wintergreen it is called in the interior Tea-berry; in some sections also Box-berry, and eastward Checker-berry and Partridge-berry, the last two names being applied to *Mitchella repens*, also, and thus causing confusion. *Mitchella repens*, Partridge-berry, is a very pretty little trailing evergreen, herbaceous plant, the place of which no other plant can fill as well in our Winter garden. We should plant it about the foot of the trees just where it is most found in its native habitat in the dry woods from far north well toward the south. The ovate, shining leaves of this plant are often variegated with whitish lines. *Mitchella* belongs to the family Rubiaceæ, to which also belongs such important plants as the Coffee and Peruvian Bark trees, but *Epigæa repens*, the Pyrolas, and *Gaultheria* belong to Ericaceæ, the Heath family, which embraces so many of our native berry fruits and broad-leaved evergreens.

I will honor Christmas in my heart, and try to keep it all the year — *Dickens*.

Foreign Exchange Department

HYACINTHS IN POTS.—Select clean, healthy-looking bulbs, not large, but well ripened, heavy bulbs. It must be borne in mind that many varieties having small bulbs very often give the best spikes of bloom, and must not be discarded. Procure the bulbs early, and do not select from those exposed in shop windows or in open baskets, as this treatment sadly detracts from the value of the bulb. The best compost is well-seasoned turfy loam, well broken, but not sifted, and mixed with plenty of well-decayed manure and silver or river-sand. If this cannot be had, any good garden soil with plenty of well-decayed vegetable refuse or manure from an old hot-bed, to which add silver or road sand, will do. Avoid all soils that run together, for the more porous the soil the better will the bulbs succeed. If the compost is mixed together two months before it is used, it will be all the better. For general use 6-inch pots are the best. In potting place a large crock at the bottom for drainage, filling up the pot with the above compost. Clear the bulb of all offsets and loose pieces, and with the fingers make a hole in the soil, into which put the bulb, but do not press it in too much. Have previously prepared in the open air a level piece of ground with a hard bottom of coal-ashes to prevent worms getting into the pots. Place the pots on this and give the bulbs a good watering to settle the soil. After the surface has become fairly dry, cover the whole with fine ashes, old tan, sand, or leaf-mould to the depth of 6 inches. Let them remain thus for four to six weeks, so as to get the pots well filled with roots before the foliage starts into growth, as this is one of the most essential points. The time of potting should be regulated according to the use required, but a succession of bloom may be had from Christmas to the end of April by commencing about the second week in September, and potting some bulbs every fortnight up to the end of December. After the pots are removed from the ashes they should be cleaned from all impurities and gradually inured to light. Give them abundance of water, and keep as near the glass as possible. If not required early they may be placed on shelves in a cool greenhouse, in a frame, or on a window-sill, care being taken to protect them from frost.—*Gardening Illustrated*.

THE CREEPING ROSEMARY.—*Rosmarinus prostratus*, as the prostrate form of the common Rosemary is called, is a most delightful shrub for a dry wall, sunny ledge, or any other warm spot where the soil is light, and there is full exposure to the south or west. It is quite a fast grower, soon covering a considerable space with its pretty, arching branchlets, or closely hugging the rock face, and it flowers profusely. Here we can usually look forward to a good show of blossom in Autumn in addition to that of Spring, and the pale blue flowers are fully as large, if not often larger, than those of the type. The foliage of *R. prostratus* is a peculiarly fresh and glossy green, which looks well in the rock-garden at all seasons. Though not hardy, this variety will often survive an average Winter in places not noted for a mild climate, whilst in the south and west it is rarely affected. As a matter of fact the lowly, creeping habit of *R. prostratus* is distinctly in its favor in bleak districts, for not only is it thus less liable to injury by frost and cutting winds, but it may be much more easily protected than the ordinary Rosemary.—*Gardeners' Chronicle (British)*.

GREAT BELL-FLOWER, PLATYCODON GRANDIFLORUM AND ITS VAR. MARIESI.—Sometimes called the Balloon flower owing to the shape of the buds when on the point of bursting, this plant, allied to the Bell-flowers, is lovely. Groups of its delicately colored large flowers, borne in loose clusters at the extremity of the 18-inch high growths, are among the most beautiful things in the borders.

Of the palest mauve, with deep violet lines running down the inside of the flowers, it is a choice flower. It is a native of Siberia, and perfectly hardy, flourishing in any but a waterlogged soil; best of all in a friable, warm compost, where its fleshy root stocks may ramble freely. The handsome var. *Mariesi* comes from Japan, and is a much dwarfer plant, which flourishes under similar conditions. It has the most beautiful deep violet purple flowers, each 3 inches across.—*Gardening Illustrated*.

VIBURNUM CARLESH.—This beautiful *Viburnum* is a native of Corea and is quite hardy, and I know of no shrub that has such a delicious scent. It does not grow very tall, but spreads well and the foliage is broad and somewhat rough.

The waxy, white flowers are borne in a cluster at the top of the shoots, not unlike those of a white *Bouvardia*. The plant prefers a rich, moist soil and requires little or no pruning. It is a shrub that should be in every collection, however small, and is also suitable for growing in pots. This shrub flowers in April and will do equally well in sun or shade provided it has good soil to grow in.—*Gardeners' Chronicle (British)*.

CARYOPTERIS MASTACANTHUS.—This deciduous shrub from China is sometimes called the Blue Spiraea. It is of dwarf

habit, with silvery green foliage and blue flowers somewhat darker than those of *Ceanothus Gloire de Versailles*.

It is a splendid plant for a warm, sunny position, and flowers in September, which makes it especially valuable. The shoots should be pruned to two or three eyes during April and all weak wood taken out. The plant is apt to become overcrowded; therefore, to ensure fine, strong spikes of bloom the growths should be thinned when they commence to grow.—*Gardeners' Chronicle (British)*.

IRIS CRISTATA.—Few of the dwarf rhizomatous Irises are so delightful and satisfactory as *Iris Cristata*, from the mountains of Kentucky, Virginia and Carolina. Where it succeeds well, as it does in most places, it increases into a spreading mass of short, broad leaves and stems, four inches to six inches, or so, high, bearing wonderfully large flowers of a charming lilac or violet shade, decorated with a conspicuous crest, one of the features of the *Evansia* section, to which it belongs. It thrives specially well in some gardens and in these it is an object of great beauty.—*The Garden*.

IPOMEEA QUAMOCILIT.—Those who appreciate the Morning Glory family will find *I. Quamoclit*, with its finely cut foliage, one of the most interesting of them all. It is perhaps better when grown as a pot plant, being rather unreliable in the open in most districts. If the pots be limited in size—say, to 6 inches—very neat specimens may be grown, and a few spriggy branches inserted in the soil will keep the slender, twining branches in order. The blooms vary in color, but in most cases they are red, and consist of a long, slender tube with an expanded mouth, in the form of a star. *I. Quamoclit* is the Cypress Vine of American florists' catalogues.—*Gardening Illustrated*.

ABUTILON GOLDEN FLEECE.—Small pieces of *Abutilon Golden Fleece*, if plunged in their pots in vases, or in beds in the open, are very ornamental and flower quite freely. The variety is one of the showiest of the family, and when trained in the greenhouse and established in large pots, or when planted out, it blooms with the greatest freedom, and is well worthy of attention.—*Gardening Illustrated*.

YELLOW CROCUSES AND PHEASANTS.—Those who are purposing planting Crocuses in quantity in the grass will do well to be aware of the fact that many birds are specially partial to Yellow Crocuses and will frequently destroy the flowers. Pheasants are destructive both to the flowers and corms. It is rather singular that they leave the blue, white and striped varieties alone, while the yellow sorts may be entirely eradicated by these birds. I know of several places where Crocuses were planted in vast numbers in the grass. In these the yellows have gradually disappeared; while the blue, white, and striped sorts have increased very greatly. I have in mind a broad stretch of lawn in front of a large mansion where in Spring there are myriads of Crocuses of all colors except yellow, which were planted in the same proportion at the same time. It was found that the pheasants not only destroyed the flowers but pecked the corms away. As yellow Crocuses were desired these had to be planted in an enclosed garden where the pheasants scarcely ever entered, owing to the place being so much frequented.—*Gardeners' Chronicle (British)*.

CAMASSIAS.—These attractive and graceful North American bulbous plants are very valuable for June flowering. Although beautiful in the border while in flower, they are apt to become untidy afterwards, and the ideal place for them is a partially-shaded glade of the woodland, where they may remain undisturbed for years. *C. cusickii* is a handsome species forming a rosette of broad, glaucous leaves, and throwing up tall, elegant spikes of large, pale lavender flowers with yellow anthers.

C. leichtlinii produces tall spikes of starry, creamy-white flowers with pink anthers.

Two garden forms of *C. esculenta*, Royal Purple and Silver Queen, also produce handsome spikes of dark blue and light blue flowers respectively, and are well worth growing. When left in the same position for several years they should be given an annual top-dressing of rich compost, and as soon as signs of exhaustion appear they should be lifted and divided.—*Gardeners' Chronicle (British)*.

PHYSOSTEGIA.—This is a hardy herbaceous plant of perennial duration, and remarkably interesting on account of the peculiar sensitiveness of its flowers, which may at will be placed in almost any position by a move of the fingers at right angles, and will remain where placed for some short time. It was introduced during the 17th century, and is a native of North America. When exhibited at a recent meeting of the Royal Horticultural Society it was described as the "Obedient Flower," and created a large amount of interest and something of a sensation on account of this peculiar sensitiveness of the flowers.

The *Physostegias* are of the easiest culture, delighting in any moderately rich soil, and may be planted with good effect in almost any sunny position, producing numerous, well-branched, stout spikes of pretty, tubular flowers in clustered racemes, and arranged in the four directions of the compass.

These varieties are well worth growing, and merit the best positions in the flower border, being especially effective when planted in groups of three, six or nine in a clump, from July to September. *P. virginiana* has bright pink, tubular flowers, and grows three to four feet tall. *P. v. alba* has snow-white flowers, and grows only two feet tall. *Gardeners' Chronicle (British)*.

MAGNOLIA STELLATA.—All the members of this family are fine, handsome subjects and the species under notice is no exception. It does not grow so tall as some, only reaching a height of four to six feet. It has small, waxy white flowers, and has the advantage of being very free flowering, which cannot be said of some other varieties. The tree flowers in March and April; the blooms are about four inches across and star-shaped. It forms a dense bush and the foliage is a beautiful light green. The flowers are sometimes marred by early spring frosts, but in an open season it is an object of great beauty. A bed of this *Magnolia* planted in a sheltered position is a fine sight when the trees are in full bloom, and the flowers are sweetly scented. This *Magnolia* is much used for pot cultivation; it is one of the best of shrubs for the front row of the shrubbery and should not be omitted when forming a new plantation of mixed shrubs.—*Gardeners' Chronicle (British)*.

THE JUDAS TREE.—Of the small genus *Cercis*, this species (*C. siliquastrum*) is the most familiar, though it is by no means common in gardens. It is one of the oldest of exotic trees, having been introduced to this country from Southern Europe in 1596. The generic name appears to have been bestowed upon it by Theophrastus some two hundred years before the Christian Era, and tradition has it that it was upon a tree of this kind that Judas hanged himself. *C. siliquastrum* is generally seen as a low, somewhat spreading tree of fifteen to twenty feet in height, but it will attain a much greater height. It is a deciduous species, the broad, rounded leaves being a pale green changing to yellow in Autumn. The flowers, which appear before the leaves in Spring, are pea-shaped and are produced at the joints of the old wood, or even from the trunk. They vary a good deal in color, but in average specimens they are a full toned rosy lilac, so that a Judas Tree laden with these pretty blossoms on a sunny day in May is a very beautiful object. There is a variety with white flowers. Much of the beauty of the Judas Tree, however, lies in its characteristic habit of growth and equally remarkable bark. *C. siliquastrum* is naturally a sun-lover, and it will thrive in any well drained loam, the situation being one that is sheltered from cold spring winds and late frosts.—*The Garden*.

Brief Horticultural Jottings

According to the *Journal of the Royal Society of Arts*, swallows' nests are considered a great table delicacy by the Chinese, and a sumptuous Chinese dinner is not complete unless there is a dish of this palatable food. There are two kinds of nests, a white variety and a feathered variety, the latter having birds' feathers in the texture. The nests are obtained from the Malay Archipelago, including Borneo, Sumatra, Java, and the Philippine Islands. They are also found in other places, especially on the reefs or islets off the coast of Changpu. The popular belief that the nests are made from jellyfish or seaweed is said to be erroneous. The particular swallows' nests used are said to be rich in albuminous matter, the nitrogen content varying from 3.39 to 24.6 per cent.—*Gardeners' Chronicle (British)*.

Dr. Sumner Coolidge, a relative of President Coolidge, has this season been thoroughly testing Dextrogerm, the new radio-active peat introduced by Bernard Field of Plymouth, Mass., and according to the *Boston Traveler*, the tests have conclusively proved that Dextrogerm, used on garden crops, will produce as good, and in many cases better, results than commercial fertilizers, at one-half the cost. The experiments were carried out on the understanding that the sanatorium should be at no expense unless the results were satisfactory. Alternate rows of corn and tomatoes were treated with fertilizer and Dextrogerm so that the subjects were under the same general conditions. While one or two crops were about even, many others showed a 10 to 20 per cent gain where Dextrogerm had been used. The experiments, we understand, were conducted under the direction of the State Department of Agriculture and will be continued next year on a 30-acre field.—*Exchange*.

Apples without cores or seeds are promised by a discovery announced at Abbotsford, Canada, the particulars of which have just been received by the Department of Commerce. According to the announcement a seedless and coreless variety of Fameuse apple has been developed, which differs but slightly in shape from an ordinary Fameuse by being longer and flatter at the ends, but with the typical coloring and flavor. Except for a slight marking

on the flesh which outlines the situation of the core in an ordinary apple, there are neither core nor seeds. The apples were developed in an orchard at Abbotsford, and the discovery that they were out of the ordinary was an accident. They had come from a new block of Fameuse, about eight years old, which had been top grafted on Rabka seedlings. The discovery was made while grading for market, but unfortunately no record was kept of the tree or trees producing the new fruit and it will not be before another harvest that steps can be taken for its development.—*American Fruit Grower*.

Comments from Our Readers

In the interesting note on *Hibiscus* in the November issue, "Florum Amator" states that "There are twenty-eight species of *Hibiscus*." This statement can hardly be accepted as completely inclusive. Bailey, in his *Cyclopedia of Horticulture*, notes that "there are from one hundred and fifty to two hundred species, but perhaps only twenty known horticulturally in this country." Over four hundred species are listed in the *Index Kewensis*, all in good standing from a botanical point of view, but probably not all grown under cultivation.

It is a genus which is pretty well spread over the earth; North and South America, China and Japan, South Africa, Australia, India, Abyssinia, and Madagascar. What a fine jaunt it would be to visit all the *Hibiscus* at home!

Besides the species mentioned by "Florum Amator" there are two others worth while growing as annuals just for garden display. *Hibiscus Manihot*, native of India, where it is perennial, makes a strong single stemmed plant six to eight feet high, with large palmately divided leaves. The flowers are pale yellow with a dark eye, and are six inches or more in diameter. If need be, the roots can be lifted and stored over the winter.

H. Trionum, a South African species, occasionally seen listed as *H. africanus*, makes a bushy plant about two feet high, with flowers also pale yellow with dark centre, about two inches across.—*H. E. Dotterer*.

Department of Book Reviews

STANDARDIZED PLANT NAMES is the title of an extraordinary volume just issued by the American Joint Committee on Horticultural Nomenclature. It is extraordinary because it is the first attempt in the history of horticulture to propose one scientific name and one common or vernacular name for each item in American horticultural commerce. It is extraordinary also because it includes, for the first time, the joint efforts toward this end of six important trade and semi-professional organizations and the eight strongest special flower organizations. Quite as unusual is the fact that this book has been the result of some eight years of effort by a subcommittee of eminent plantmen, which if charged for by these gentlemen would make the book cost double the price asked for it. These men are Frederick Law Olmsted, a distinguished landscape engineer, Frederick V. Coville, the Botanist of the United States Department of Agriculture, and Harlan P. Kelsey, well known as a landscape architect, plant expert and nurseryman. The work has also had the constant supervision of the Chairman of the American Joint Committee, J. Horace McFarland, who is likewise responsible for its peculiarly efficient and readable typographic form.

STANDARDIZED PLANT NAMES is a compact volume of 546 closely printed pages, including more than 40,000 entries in one carefully cross-indexed alphabetical sequence, with a type arrangement which makes the approved and unapproved names instantly and almost subconsciously appreciable. It has as well, in the only separated list, the official code and list of fruit names of the American Pomological Society. In this volume there has been no attempt to propose a new system of horticultural terminology. There has been a plain idea to "make buying easy" so far as commerce is concerned, and to make definite all transactions in plants and all literature about plants because but one name of its kind is used for each item.

It is only proper to add that a long and important list of collaborators has aided in getting together this tremendous collection of plant names, and in working over them for the end in mind. Dr. Bailey of Cornell, the various authorities of Arnold Arboretum, experts in the Department of Agriculture at Washington, men acquainted with special plant groups all over the nation, have participated in preparing the copy and in reading the proofs. The book is consequently in no sense the expression of the terminological tendencies of a limited group, but a genuine endeavor to accomplish the object aimed at.

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Secretary's Office, 286 Fifth Ave., New York

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NORTH FLORIDA: Herbert Tickner, Orange Park, chairman; Alfred Addor, Jacksonville, secretary.

THE BOSTON BRANCH

A meeting of this branch was held at Horticultural Hall, Boston, on Friday evening, December 7. There was a splendid attendance at the meeting over which Robert Cameron presided. Andrew K. Rogers was elected chairman for the ensuing year and James Donald, secretary-treasurer. It was voted to hold quarterly meetings and to have a speaker on some live subject at each meeting. The question of the re-admission of delinquent members was thoroughly discussed; the meeting went on record as unanimously opposed to any letting down of the By-Laws for permitting suspended members coming back in the association without the payment of back dues, but felt that there might be occasional cases where the local branches and the national secretary could use their judgment. It was voted to send a letter of sympathy to Montague Free, sympathizing with him in his very heavy bereavement. Another meeting will be held near the date of the local conference which will take place during the great orchid show in May. Robert Cameron for over two hours kept the members interested in a word portrayal of his recent trip to Great Britain, describing many notable estates, parks, botanic gardens, and flower shows. He received an enthusiastic vote of thanks.

W. N. CRAIG, Secretary.

NEWPORT BRANCH

A meeting of this branch was held in Music Hall, Newport, on November 27. The plan of cooperation submitted by M. C. Ebel, national secretary, was thoroughly discussed and endorsed, all present agreeing that it would simplify matters considerably and bring the branches into closer contact with each other. Communications from the North Shore of Illinois and Western Pennsylvania branches were read, relative to the re-instatement of delinquent members and it was agreed that the By-Laws of the organization should be upheld, although it was suggested that some concession might be made to enable delinquent members to be re-instated on the payment of a specified sum that may be determined at the next meeting of the association.

FREDERIC CARTER, Secretary.

WESTERN PENNSYLVANIA BRANCH

A meeting of the members of the above branch was held in the Carnegie Library, Pittsburgh on Tuesday, November 20, James Moore, chairman, presiding.

Communications were read from a number of branches in reference to Article III Section I of the By-Laws. These were ordered placed on file. After a short business session the members enjoyed a sumptuous repast provided by the entertainment committee. It was decided to hold the next meeting on Tuesday, January 15, 1924.

HENRY GOODBAND, Secretary.

MONMOUTH AND ELBERON (N. J.) BRANCH

The November meeting of this branch was held on November 27 at the home of William Turner, Rumson, N. J.

A letter was read from the Western Pennsylvania Branch regarding Article III Section I of the By-Laws referring to members in arrears for dues. After a lengthy discussion, this branch went on record to abide by the By-Laws believing that to suspend them would be unjust to members in good standing, and liable to cause a bad precedent. However, this branch is ready at all times to do all in its power to advance the N. A. G. and the profession.

A letter was read from Mr. Ebel regarding communications between branches going through the Secretary's office, thus recording and holding on file such matters and relieving the local secretaries of much work. We heartily endorse this proposal and at the same time appreciate Mr. Ebel's splendid cooperation.

The subject of the sign nuisance was brought up. In this section our highways are being badly disfigured through this nuisance and a campaign is being organized to combat it with the help of our local societies.

The December meeting will be held at Elberon to accommodate our members living in that section.

FRANK EDINGTON, Secretary.

THE NORTH FLORIDA BRANCH

J. K. Brower, a member of this branch addressed the Florida State Florists' Convention on November 21 at Tampa, Fla. on the subject of "The Opportunities that Confront the Professional Gardener." This branch is taking an active part in the horticultural affairs of the state and will cooperate with other organizations in combating the bill board nuisance which is marring the scenic beauty of the highways.

NASSAU CO. L. I. BRANCH

The annual meeting of this branch was held on the afternoon of December 11 at the new country club, the Creek, Locust Valley, L. I., with Chairman James Duthie presiding. Communications from the North Shore of Illinois and Western Pennsylvania branches were read referring to a modification of the by-laws respecting the reinstatement of delinquent members, and after some discussion, it was voted unanimously as opposed to any change. A communication from Manus Curran, Sewickley, Pa., chairman of the committee appointed to investigate the desirability of having each branch recommend a director yearly, was favorably received, as was the plan submitted by M. C. Ebel, national secretary, to secure a more united cooperation between the branches. Mr. Ebel was made an honorary member of this branch.

The following officers were elected for the coming year: William Milstead, Glen Cove, chairman; James Kelly, Glen Cove, secretary; John McIntosh, Syosset, treasurer; James Duthie, Oyster Bay, Alex Michie, Locust Valley, Joseph Adler, Glen Cove, trustees. It was voted to hold meetings once a month, the next meeting to be held in Glen Cove January 9.

JOHN R. McCULLOCH,
Secretary.

AMONG THE GARDENERS

Anton Bauer for many years of Deal, N. J., and more recently of Tuxedo Park, N. Y., secured the position of superintendent to Mrs. W. L. Glatfelter, Spring Grove, Pa.

William Thomson secured the position of gardener to Mrs. A. C. Barnes, Washington, Conn.

Alexander Adams secured the position of head gardener under Richard Calvert, superintendent of Ormiston Gardens, the estate of J. E. Aldred, Glen Cove, L. I.

James Foulis secured the position of gardener to Clifton A. Crocker, Springfield, Mass.

E. S. Fletcher has accepted the position of gardener on the estate of D. Kelleher, Mt. Airy, Va.

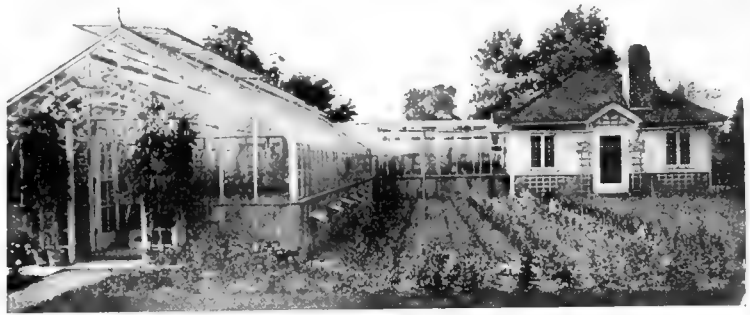
MRS. MONTAGUE FREE

Friends of Montague Free, Horticulturist of Brooklyn Botanic Garden, and Treasurer of the National Association of Gardeners, were deeply grieved to learn of the death of his devoted wife which occurred on November 28th, six days after an operation. Those who knew her well realize what a great loss Mr. Free has sustained, for she was a helpmate and companion in the truest sense. Mrs. Free was blessed with a happy disposition; an intense love for plants and birds, and gifted also with artistic ability. Her skill in this direction had been recognized at the Brooklyn Botanic Garden, for which she had colored slides of plants and plantings. Though quiet and unassuming she will long be remembered and mourned by her many friends.

JOHN DAVEY

John Davey, founder of the Davey Tree Expert Company and the Davey Institute of Tree Surgery, who was widely known throughout the country as the "father of tree surgery," died suddenly at his home in Kent, Ohio, on the morning of November 8, in his seventy-seventh year. Mr. Davey was born in Somersetshire, England, and from his very early boyhood was compelled through circumstances to earn his living.

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Jersey City, N. J.

Not until he was twenty years of age did he find the opportunity to secure any education, but with the aid of the New Testament and a pocket dictionary, he taught himself to read. Continuing his self-education, he became in time a fluent writer and the author of several books on the care and protection of trees. Mr. Davey came to this country in 1873 and about forty years ago settled in Kent where the Davey Tree Expert Company was organized, which today is reported to employ over four hundred men and to carry on business amounting annually to a million dollars. Mr. Davey's ideas on the treatment of trees were not at first received with favor, but today they are accepted as the scientific method of the preservation of tree life. During the last few years, his oldest son, Martin L. Davey, who is at present a member of Congress of the 14th Ohio district, has directed the management of this

business. Commenting editorially on John Davey, the New York Evening Mail said: When John Davey died some days ago, comparatively few persons had heard his name. Yet, in the great cities at any rate, there are few who do not owe something to his life work. For it was John Davey who . . . perfected those methods of tree surgery that have done so much for city parks. The ancients believed that the spirits of the departed sometimes inhabited trees. We can believe that if John Davey's had that choice, it would choose a gallant oak for a dwelling place.

EDWARD F. REAGAN

Edward F. Reagan, for more than a quarter of a century prominent in gardening circles in Morris Co., N. J., died at his home in Long Branch, N. J., on December 5. He

had been in poor health for some time. Mr. Reagan was one of the charter members of the Morris County Gardeners' and Florists' Society and for twenty-one years, or until his removal from Morris Co. was secretary of this organization. Mr. Reagan was born in Red Bank, N. J., about sixty-six years ago and after receiving his early education in the schools of that place, attended Rutgers College, taking a course in the botanical department. Some years later he moved to Morristown, N. J., and for thirty years was superintendent of the Louis Thebaud estate, retiring about two years ago. He is survived by his wife and daughter, Mary.

LOCAL SOCIETIES

NASSAU CO. HORT. SOCIETY

The assistant gardeners made a splendid showing at the meeting of this society for the Miss Alice De Lamar Special which brought out seven entries. President James Gladstone appointed Messrs. Churchill, Sutherland, Meech, Trepas, and William Milstead to judge the exhibits. Their decisions were as follows: three white chrysanthemums, first, Peter Smith; table decoration for assistant gardeners, first, Norman Bruce; second, James Young; third, Ernest Riddel; three fine plants of Begonia "Gloire de Lorraine," exhibited by James Kelly, were awarded a Cultural Certificate.

Frank Caphia of Roslyn was elected to active membership and four petitions for active membership were received.

A smoker will follow the annual meeting to be held on Dec. 12, at which time the election of officers for 1924 will take place. Exhibits for this meeting will be three cut poinsettias; 12 mixed carnations; 12 mixed roses. The meeting will start at 7 p. m.

ARTHUR COOK, Cor. Secy.

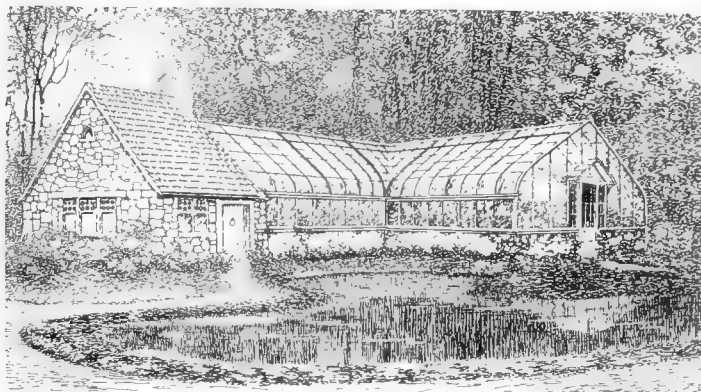
CLEVELAND HORT. SOCIETY

A special meeting was called for Nov. 12 at West Technical High School greenhouses, where this society was the guest of O. M. Eastman, supervisor of the Garden Department of Cleveland public schools, and A. S. Haag, instructor of Horticulture at West Technical High School. The school had a splendid exhibit of Chrysanthemums which had been on display to the public for three days; a few of the private gardeners had also staged some Chrysanthemums, Begonias, etc. There are one hundred and seventy-five pupils taking this course, and a great deal of credit is due to them and their instructor for everything in the greenhouses was in good shape. The Chrysanthemums were as good as could be found anywhere.

In the evening there was a meeting held in the class room, where Mr. Weeks, superintendent for G. Holden, spoke on Chrysanthemum culture, telling how Chrysanthemums are grown in England and how they are grown here. R. P. Brydon, superintendent for Mrs. F. F. Prentiss, spoke on Begonia culture, both the Lorraine type and the Winter blooming varieties. Mr. Scobi, a graduate of the horticultural course and now an employee there, spoke for the school. Mr. Jones, local chairman of the National Flower Show Committee, talked about the coming show, urging everyone to exhibit, large or small groups.

A rising vote of thanks was accorded the men responsible for the exhibit, and to the speakers. Refreshments were served by Mr. Eastman and Mr. Haag which ended an enjoyable and profitable evening.

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WESTCHESTER AND FAIRFIELD HORT. SOCIETY

The regular monthly meeting of the above society was held in Greenwich, Conn., Tuesday evening, Nov. 13, with President Rutherford in the chair. Two new members were elected. As it is the wish of the society to have the annual dinner, the following were chosen as a committee to plan the entertainment, etc., for the affair: James Linane, James Tough and William Whitton.

The medals which were won at the recent Dahlia Show in Greenwich, were given out, the winners being: Mrs. F. Constable, Mamaroneck; Mrs. E. E. Smathers, Port Chester; Mrs. Whitelaw Reid, Purchase; J. H. Troy and Mills & Co., New Rochelle; Stump & Walter Co., New York; Walter Slade was awarded a Certificate of Merit for his vase of undissected Dahlias.

The nominations of officers for 1924 resulted as follows: President, Edwin Beckett and John Rutherford; vice-president, W. D. Robertson and H. F. Bulpitt; secretary, John Wilson and George Hewitt; treasurer, W. J. Sealey and James Stuart; corresponding secretary, William Whittan and Cyril Hayman; executive committee members: James McCarroll, Alex Marshall, J. McAllister, and James Linane.

The A. N. Pierson and J. H. Troy monthly competition awards were: 1st, Begonia, Edwin Beckett and also a cultural certificate for same; 2nd, W. D. Robertson, collection of Anemone Chrysanthemums; 3rd, Thomas Middleton, vase of Chrysanthemums; 4th John Wilson, Begonia. For vegetables, H. F. Bulpitt was first with a plate of apples; James Linane was second for six onions.

The committee had arranged a competition apart from the usual A. N. Pierson and J. H. Troy classes, the classes and winners were: Chrysanthemums; Class 1, twelve large blooms, first, James Stuart; Class 2, six large blooms, first, W. D. Robertson; Class 3, six vases of singles three sprays to a vase, first, Harry Jones; second, James Stuart; Class 4, six vases of Pompons, first, George Hewitt; Class 5, nine blooms of Anemone type, first, W. D. Robertson; Class 6, vase any varieties arranged for effect, first, W. D. Robertson; second, George Hewitt.

Vegetables; Class 7, collection of six varieties, first, Walter Slade; second, James Linane; Class 8, three heads of lettuce, first, W. D. Robertson; second, James Linane; Class 9, six leeks, first, James Linane; second, James Tough; Class 10, six onions, first, Walter Slade; second, John Wilson; Class 11, three cauliflowers, first, James Linane; Class 12, six celery, first, James Tough. George Hewitt received a certificate for a collection of pompon Chrysanthemums.

ANDREW KNEUKER, Cor. Secy.

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